BURKINA FASO: INTEGRATED RURAL DEVELOPMENT PROJECTS IN SEGUENEGA AND DORI DEPARTMENTS

A.I.D. PROJECT IMPACT EVALUATION REPORT NO. 61
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PREFACE

As part of AID's study of integrated rural development programs, an impact evaluation was conducted of two such projects being implemented by American private voluntary organizations (PVOs) in Burkina Faso. One, the Seguenega Integrated Rural Development Project (SIRD), is being implemented in collaboration with the Organization for Regional Development (ORD) of the Government of Burkina Faso with technical and financial assistance from Africare, Inc. AID provides financing to Africare, Inc. under an operational program grant. Project implementation began in 1978 and was scheduled to end in October 1984, following a 1-year extension that was approved in 1983. The other project, the Dori Integrated Rural Development Project (DIRD), carried out by the Save the Children Federation-USA (SCF) at Dori, began in 1978 with an AID grant of $220,000 to finance a small pilot project. After expenditure of the AID grant, SCF expanded the project with its own financing, working directly with village populations.

The AID evaluation team visited Burkina Faso for 1 month

(May 25-June 22, 1984), during which time field trips were made to Yatenga Province (Ouahigouya and Seguenega Departments) and to Sahel Province (Dori Department). The team leader was a senior project officer from AID/Washington, and the other members included an agricultural economist, a rural development specialist (both U.S. contractors with extensive experience in rural development and in the area), and an assistant project development officer (a Burkinabe) on the staff of USAID/ Ouagadougou. The team's purpose was to determine lasting changes in socioeconomic conditions resulting from the two projects and to analyze the causes for such changes or lack thereof. The team's approach focused on the following questions: (1) given the project goals, to what extent were project output targets achieved; and (2) what were the reasons for achievement or nonachievement (e.g., external factors, cultural setting, difference in PVO approaches, Government of Burkina Faso policies and practices, implementation procedures and problems)?

When the data were available, the team considered as the primary impact the degree to which quantitative targets had been achieved and the continuing validity of those targets. In the case of SIRD, the detailed logical framework for the project and the annual Africare reports have provided such data for each of the project components. A second indicator of impact was the physical evidence observed by the team (e.g., cereal banks, warehouses, village pharmacies, and vegetable gardens visited in participating villages). Finally, the team cross-checked information, where possible, through comparisons with similar components in other villages (e.g., numbers of monthly visits to village health centers in different areas).

The team evaluated the quality of achievements by impressions received from many interviews in the field, both with project staff and participating villagers. The team is aware, however, of the limitations of its impressions: brief visits and hospitable villagers wanting foreigners to hear what they want to hear.

Although impact evaluations are meant to analyze lasting changes that have resulted from project activities, neither the Seguenega nor Dori Projects were complete at the time of this evaluation. Even more important is a realization that these project activities have had very few years to affect the Burkinabe people and their lives, which are only now barely changing after innumerable years of subsistence living.

SUMMARY

In May-June 1984 AID sent a team to Burkina Faso to conduct an impact evaluation of two integrated rural development projects administered by American private voluntary organizations (PVOs). One project, in the Seguenega Department of Yatenga Province, had been planned and executed by Africare, Inc. The other, in the Dori Sector of Sahel Province, was carried out by the Save the

Children Federation-USA (SCF).

The approach of both PVOs was to work with village groups, assisting them to organize and carry out various development activities themselves. The PVOs provided technical assistance, materials, and equipment, some of which also came from the Government of Burkina Faso and other governmental and voluntary assistance programs. AID approved an operational program grant of $5.9 million to Africare in 1978 for the Seguenega Integrated Rural Development Project (SIRD), which was scheduled to continue for 5 years and was subsequently extended through FY 1984. AID made an operational grant of $220,000 to SCF to finance a small pilot project at Dori in 1975 (the Dori Integrated Rural Development Project, or DIRD). After expenditure of the AID grant, SCF expanded the project with its own financing.

Africare and SCF have followed somewhat different approaches in actual execution of these projects. Africare has integrated its technical assistance personnel with the provincial office of the Government of Burkina Faso's Organization for Regional Development (ORD) to form the project organization (SIRD), which has worked independently of both the central Government and USAID. Africare has followed AID programming practices and by mid-1984 had substantially accomplished the project's stated physical goals in a range of areas, including organization of village groups to carry out self-help development activities, vegetable and livestock production, primary health care, road -building, and adult literacy. SIRD has been less successful in lowland rice cultivation activities, reforestation, and improvement of chicken stock. Important ingredients in assisting villagers in gardening and livestock activities have been the provision of initial funding to provide credit and well-digging.

SCF, working in the even more austere climate of Sahel droughts, has used its Community-Based Integrated Rural Development approach. SCF has worked with the villagers to undertake projects in which they are interested and that are generally similar to but not as extensive as those in DIRD. A particularly important element here has been village cereal banks, which furnish credit and grain storage to villagers to provide them with a year-round food supply. Without specific targets, DIRD's physical accomplishments are more difficult to evaluate.

The following conclusions can be drawn from the experience gained in these two projects:

1. The Mossi people living in the Seguenega area have traditions of group action that facilitated the village group approach to development. The several tribes in the Dori area did not share this tradition, and consequently the village group was less widely accepted.

2. Projects based on activities that the villagers have already found profitable are most likely to succeed.

3. Successful sequencing of projects requires planning,

budgeting, and the support of other organizations beyond the village.

4. Projects requiring cash investment or changes in traditional practices are more likely to succeed if preceded by other successful projects.

5. AID, other than providing initial funding for these projects, has served in a supportive, rather than active, role. USAID has given needed guidance to Africare in meeting AID's procurement requirements, but SCF's difficulty in meeting AID programming requirements was an important factor in SCF's failure to receive a second operational program grant.

6. The beneficiaries of the projects have generally been the targeted groups, but increased village income seems generally to have been used to buy more consumption goods.

7. The projects, particularly SIRD, have contributed to institution building through sensitizing villagers to the possibilities of self-help development activities and training Government personnel to assist villagers in carrying out such activities.

8. The technical assistance provided by SCF and Africare has enhanced local capabilities to organize village development activities and has increased local technical knowledge.

9. Integrated rural development projects had little influence on Burkinabe economic policy (e.g., raising interest rates closer to the market level) because the projects were far from the central Government and too limited in impact area.

10. These projects focused on community rather than private sector development. However, both worked appropriately with private interests at the local level. Although the projects sought to relieve villagers from high interest rates on crop loans and monopsonistic market pressures imposed by private merchants, the latter so far have not attempted to interfere with the projects' production and marketing activities.

11. Given time, resources, the dedication of the staffs of Africare and SCF, and sufficiently trained Government personnel, these projects should be replicable.

12. To make these projects self-sustaining, both include credit rollover arrangements and slow accumulation of a cash fund for production activities. The degree to which these arrangements take hold depends on increasing the villagers' capacity to administer such funds themselves, some continuing technical assistance from

the Burkinabe Government, and amelioration of the drought conditions of recent years.

13. Integrated rural development is an extremely management-intensive undertaking and is vulnerable to the limited availability of expatriate technical advisers.

14. Long-term, major policy changes or initiatives by the Burkinabe Government (e.g., development of basic water resources and provision for emigration to areas that can support the population) may be necessary to the long-run success of integrated rural development programs.

GLOSSARY

Africare, Inc. - A U.S.-based private voluntary organization that works for relief and development in Africa

AID - U.S. Agency for International Development

animation rurale - A type of rural extension initiated in France by which villagers are encouraged to mobilize and assume development activities

animateur - A male extension agent undertaking animation rurale

animatrice - A female extension agent undertaking animation rurale

bas fonds - Low-lying areas, or lowlands

caisse - Cash fund

CDR - Committee for the Defense of the Revolution, (Comit de D fense de la Revolution), an entity recently created in Burkina Faso at the village, department, provincial, and other levels, including the private sector, to promote popular participation in the national revolution

CDV - Village Development Committee (Comit de D veloppement Villageois), a village development group set up under the GV

CFJA - Young Farmer Training Centers

CNCA - The National Agricultural Credit Union (Caisse Nationale de Credit Agricole)

CNR	- The National Revolutionary Council (Conseil National de la Revolution), the central ruling body of Burkina Faso under the current revolutionary government
DIRD	- Dori Integrated Rural Development Project
EEC	- European Economic Community
FCFA	- The Franc of the African Financial Community (Franc de la Communat Financiere Africaine); refers to the currency of Burkina Faso
GV	- A village group formed for developmental purposes (Groupement Villageois)
Logframe, Logical Framework	- A matrix used by AID providing summary management information and objectives for a project
MCH	- Maternal and Child Health
MTET	- Ministry of the Environment and Tourism
naam	- Age and gender-based work groups organized for reciprocal labor
NCAR	- National Commission for Agrarian Reform
NGO	- Non-governmental organization
ONERA	- National Office for the Management of Animal Resources (Office National de l'Exploitation des Ressources Animales), the Government planning office for livestock production
OPG	- Operational Program Grants, a mechanism by which AID grants money to PVOs
ORD	- Organization for Regional Development (Organisme Regional de D veloppement), one of 11 regional-level organizations in Burkina Faso charged with rural development
ORSTOM	- Office for Overseas Scientific and Technical Research (Office de la Recherche Scientifique et Technique (Outre-Mer)
OXFAM	- A British-based nongovernmental voluntary organization
paysans selectionn s	- Selected farmers

PCV - Peace Corps Volunteer

PVO - Private voluntary organization

PW - Ministry of Public Works

SAHEL 84 - Consortium of nongovernmental organizations working in the Sahel region of Burkina Faso for relief purposes

SCC - Seguenega Consultative Council

SCF, and SCF/CDF - Save the Children Federation-USA and the Save the Children/Community Development Foundation, the organization's name in Burkina Faso; a U.S.-based private voluntary organization that works worldwide in relief and development

SDP - Sectoral Development Program

SIRD - Seguenega Integrated Rural Development Project

SPONG - Permanent Secretariat of Nongovernmental Organizations (Secretariat Permanent des Organismes Non-Governmentales), a coordinating body for NGOs and/or PVOs in Burkina Faso

UFC - Union Fraternelle des Croyants, an indigenous organization made up of Muslims and Christians that aids in well digging

URCOMAYA - The Yatenga Regional Marketing Cooperative (Union Regionale des Cooperatives Maraicheres de Yatenga, a regional vegetable marketing cooperative

USAID - U.S. Agency for International Development, generally used to denote AID field Missions

UVOCAM - Union Voltaique des Cooperatives Maraicheres, a national vegetable marketing cooperative

VP - Volunteers of Progress (Volontaires du Progres), an AID program operated by the French Government

MAP OF BURKINA FASO

1. INTRODUCTION

Central to both the Africare, Inc. and the Save the Children Federation-USA (SCF) approaches is the mobilization of community groups for economic development activities. Despite the long time needed by the private voluntary organizations (PVOs) to establish functioning village groups, the principle now appears to be generally accepted and groups have been established in Seguenega and Dori. However, recurrent droughts and shrinking water supplies are forces far beyond the projects' resources and villagers' capacity to overcome.

The situation of many was epitomized by a village group the team met in Gomo, a Songhai (former slave tribe) village in Sahel Province. Although religious customs kept women from participating in this group, there was lively discussion among the men in answer to our questions. A villager summarized and translated their views: "We have no more tillable land to assign to our young men. Last year, the crop failed because of the drought. This year we have planted, but there has been no rain so far. If our crop fails this year, the village can no longer stay here. We will all have to move away." Even though village groups appear firmly established in both project areas, the recurrent droughts threaten the continuing impact of the project and, in some cases, even the survival of the villagers in their present state.

It is these difficult realities that have contributed to the slow progress of the two projects. Their success and lasting impact will be heavily influenced by the general economic conditions and the Government of Burkina Faso's actions and national-level development polices. For example, the continuation of drought can undermine the lasting effects of projects in food production that depends on water availability. Encouragement of permanent emigration may have to be the ultimate solution to the problems of maintaining large agricultural populations on insufficient resources. If the Government can develop successful programs to deal with these macroeconomic problems, the Seguenega Integrated Rural Development Project (SIRD) and the Dori Integrated Rural Development Project (DIRD) may have lasting impacts, not only in Seguenega and Dori, but elsewhere as well. This evaluation, however, focuses on the impact of these nearly completed projects now and in the immediate future.

2. PROJECT SETTINGS

The inhabitants of Seguenega Department suffer from an insufficient and dwindling water supply, poor soil, and lack of all-weather roads; the people of Dori have the same problems to an even greater degree. In both areas, farmers still till the soil by hand; a few use primitive donkey and ox plows. Modern mechanical equipment has been mostly unavailable, and fertilizer

and improved seed have not been generally used.

Land is generally owned collectively by the village and inherited within families as a unit. Land cannot be bought; thus farmers obtain land to till by requesting a plot from the village chief or the head of the family that has always cultivated the plot. In Seguenega, women have access to their own fields through their husbands, but in Dori, women generally do not have their own plots. Seguenega has some low-lying lands that flood during the rainy season and thus are suitable for rice culture. These are often owned by local princes who have retained their rights from the days of the Mossi kings.

With a growing population and insufficient cultivable land, many young men emigrate to the Ivory Coast or Ghana. Emigration is estimated at 15 percent of the total population annually in Seguenega, but only 2 percent in Dori. On their return to their native country, emigrants generally spend any savings from foreign earnings on consumption goods rather than in productive investment. There are few signs of the emigrants introducing new skills learned abroad into their respective home territories.

Family income depends mostly on their millet and sorghum crops and is supplemented by rice, vegetables, and livestock production (much more important in Dori), which is either consumed by the family or sold. Women engage in petty trading of processed foods, often beer.

Farmers have sold their surplus production to private merchants, who are in a position to maximize their gains from seasonal gluts and shortages. Farmers have depended on moneylenders to finance next year's planting, often paying as much as 100-percent interest.

The Seguenega area people are homogeneous ethnically, culturally, and religiously; they are mostly Mossi, the major ethnic group in northcentral Burkina Faso, and Moslem. Family ties within villages are close, and long-established customs recognize the need for mutual help in their austere environment. For example, no villager can refuse water to another who needs it. With wells running dry in recent droughts, this humanitarian principle has resulted in conversion to social use of wells dug to provide water for vegetable gardens or livestock.

In Dori, Fulfulde speakers, Fulani, freed Rimaibe and some Songhai and Djerma comprise 58 percent of the population. Whereas the Fulani and Rimaibe often occupy the same villages, other groups are generally in separate villages. Most are Moslem, although a long-established Catholic mission has built up a small Christian population and provides some literacy and other training.

Within the modern administrative framework of provinces and subunits (departments) such as Seguenega and Dori, villages traditionally have been headed by a chief, generally an older man and a leading farmer. The chief has responsibility for most

community decisions, mobilization of labor for a common project, and social, political, and religious events and celebrations. Traditionally, he makes these decisions in consultation with a group of the elder men of the village, or chefs de clans. The village chief and chef de clans hold the clans' lands and make the decisions and authorizations for their use.

Women's participation in decision-making has traditionally been limited to specific activities recognized as women's spheres. Generally, however, women are mobilizing through traditional associations. In Seguenega these traditions have given villagers a familiarity with group action that has facilitated the formation of village groups (GVs) to undertake community development activities. In recent years, the Government has had an increasing presence in the villages through development services provided through the Organizations for Regional Development (ORD) or ministries such as Health and Public Works. These traditions are much weaker in Dori.

In Dori, the nomadic Fulani herdsmen do not accept associations, and their former slaves, the Rimaibes, are hampered by their acute lack of agricultural resources. The local ORD is much less experienced and consequently plays a considerably less active role in local development.

3. PROJECT DESCRIPTIONS

These projects are two of several "integrated" projects in Burkina Faso. Multilateral agencies such as the World Bank, bilateral agencies such as AID and French Assistance-Cooperation, and other PVOs -- notably Foster Parent Plan -- also work in this field.

3.1 Seguenega Integrated Rural Development Project

Planning for SIRD began in 1975 with Africare working with the Burkinabe Government to develop a major regional, integrated rural development project. A project proposal was submitted to USAID in late 1976, and AID approved an operational program grant of $5.9 million in September 1978. To date, this is the largest single project undertaken by Africare and has resulted in a major concentrated rural development effort by the Government in Seguenega in Yatenga Province. (The project's goals, components, targets, and accomplishments by the end of 1983 are set forth in Table A-1 in Appendix A.)

SIRD is based on the premise that a combination of interacting factors is essential to creating a balanced institutional and physical infrastructure and to producing harmonious rural development. This requires activities that can be sustained and that create other activities. For farmers to account for credit, they need to become literate. For marketing vegetable output, farm-to-market roads are needed. Because it covers an entire

administrative district, SIRD also balances villages' needs and desires in a spatial or areal context.

Africare is working principally with the Yatenga ORD in Ouahigouya, and their staff in Seguenega Department and has provided short and long-term advisers in areas in which ORD or other cooperating ministries were lacking technical know-how; such areas include health care, livestock production, expansion of literacy, credit extension, and planning activities. Other donors, both Burkinabe and foreign, supplemented the skilled personnel available as well as key supplies and equipment. From 1978 to 1983, the value of their contribution is estimated by Africare at $238,668.

Progress was slow during the first 2 years of the project. Staffing of the ORD and sensitizing and organizing the villagers took time. After waiting months for delivery of equipment, it sometimes arrived without all necessary parts or in damaged condition.

By late 1980, however, planned activities had been started, and by mid-1984, quantitative output targets had been substantially met in most components (see Appendixes A-J).

3.2 Dori Integrated Rural Development Project

In 1976, AID approved an operational program grant with the SCF for a 3-year integrated rural development project at Dori in Sahel Province.

Perhaps because SCF does not have to conform to either Burkinabe Government or AID programming and budgeting procedures, its approach to integrated rural development seems simpler and possibly more flexible. Within the general principle that a combination of activities undertaken by the villagers themselves is the best approach to rural development (designated by SCF as Community-Based Integrated Rural Development), SCF has village groups identify their problems, possible solutions, and new alternatives. SCF then provides technical assistance and initial funding for inputs and establishes credit facilities to maintain the project. (Goals, components, and accomplishments are set forth in Table A-2 in Appendix A.)

Early implementation of the AID grant was held back by severe difficulties in convincing and teaching the villagers that they should take the initiative for their own development. Many within the target population are Fulanis, an ethnic group that had been largely nomadic until 75 years ago and were unaccustomed to the idea of village group actions. The Sahel ORD, which was responsible for economic development in the area, itself had just been established and had little experience in promoting rural development; and, in any case, SCF has essentially pursued a strategy of working "where government is not." SCF also had great difficulty in finding, training, and keeping

staff, both expatriate and local. Consequently, significant work in the original three villages did not start until 1978. (A fourth village to which project proposals were made declined SCF's offer because it included no handouts.) By 1980, village groups were beginning to function in several fields, and the project components then active began to coalesce. By 1984, at the request of the villagers, SCF had initiated work in eight communities in the Dori area, in addition to some peripheral activities in Dori Town.

SCF's 1984 budget establishes project activities that are planned to continue through 1987. The financing of the development program depends on the funds SCF raises through its childsponsoring program, which is very active in Dori. The extent to which such financing continues to be available for new activities or those that have not achieved self-supporting status is a major factor in continuing DIRD. Financing through mid-1984 has been estimated at $4.1 million.

4. PROJECTS' IMPACTS: ANALYSIS AND FINDINGS

4.1 Criteria for Assessing Impact

The team's assessment of the continued impact of these projects has been based on a review of management modes, financial inputs, and projected recurrent costs; the degree of participation of villagers; the appropriateness of organizational, scientific, and mechanical technologies introduced; and the likelihood of continued maintenance.

4.2 Degree of Impact of Various Elements of the Projects

Although the majority of the activities introduced by SIRD achieved the output targets set forth in the project's logical framework, assessment of their lasting impact must remain somewhat subjective and conjectural, because the project has not yet been completed and quantitative data beyond Africare's statistics on output achievement do not exist. In this regard, evidence of lack of impact on the ORD planning function is the continuing lack of economic input in the ORD planning process in the Yatenga Headquarters. Planning still consists of quarterly status reports on actual or proposed activities compiled on a market basket approach. However, in a country with 7.5 percent literacy, much more planning at this time would probably mean application of scarce skills to too narrow an area. For DIRD, output targets were set up for only the earliest years of the project, so assessment of impacts becomes even more subjective. (Tables A-1 and A-2 in Appendix A summarize targets and tangible accomplishments of the two projects.)

4.3 Factors Affecting Projects' Impacts

4.3.1 Choice of Areas

Both Seguenega and Dori are difficult areas in which to mount rural development projects. Seguenega has certain advantages over Dori however. Despite its higher population density, it has greater accessibility to outside markets and input sources, normally higher rainfall, a homogeneous population, and the fortuitous presence of other donors. Dori, on the other hand, is semiarid, with dispersed villages, and an ethnically varied population without much tradition of group action. From what the team could determine 6 years after the fact, the SCF program in Dori appears to have evolved from a suggestion by USAID/Ouagadougou and a decision by the U.S. headquarters of SCF that SCF help the most distressed area. Africare, on the other hand, chose Seguenega because it was an area with severely limited resources but, nonetheless, an area about which a considerable amount was known. Success in Seguenega could provide a model for other integrated rural development projects. Africare's greater impact over the same time period suggests that this latter approach is more feasible.

4.3.2 Recurrent Droughts

Although the general poverty of regional resources has already been cited as a negative influence on the projects' implementation, the recurrent droughts are particularly threatening to any lasting project impact. Wells run dry, so project wells built to provide water for vegetable gardens become village wells for livestock and people. Millet planted in collective fields fails to germinate and grow because of insufficient rain for several successive years. Farmers whose crops fail cannot pay their debts to cereal banks, and so on. Repeated failures of crops and lack of water also engender defeatism among the villagers, who cite such problems as "we planted, but there was no rain.... If we don't have water this year, we will have to move." The drought can become both a cause and an excuse for projects not working out.

4.3.3 Cultural Characteristics

Traditional practices have both helped and hindered project impact. The Mossi tradition of community action provided a good base for the organization of the broader Village Development Committees (CDVs) of SIRD. Such groups were less accepted among the Rimaibe and Songhai and not at all with the Fulani. However, the national Government has found this type of village organization useful and is encouraging its use for developmental and political purposes. A recent edict created village-level Committees for

the Defense of the Revolution (CDRs); these committees should be mental village groups will evolve into truly representative local governments or be co-opted for central political purposes.

Among the Mossi, traditional land tenure practices were said to interfere with bottomlands rice cultivation. In some villages the groups obtained permission from the chief of the village to cultivate rice on bottomlands and proceeded to improve the land, build dikes, and so forth. However, because of the drought, the millet and sorghum planted on other fields failed. The landlords (former princes) then took back the bottomlands and planted sorghum. Because most village land is commonly owned, the individual user's incentive to make costly improvements may be discouraged. The individual's obligation to give water to any other villager who asks for it can interfere with the use of a well meant to water a vegetable garden.

Among the Fulani and Rimaibe, the latter's former vassal status hinders access to land and some village decision-making. Options for women's participation are severely limited because women and men do not work together outside of the family. The enduring pastoral philosophy contributes to less commitment to land or location than is present among other tribal groups.

4.3.4 Availability of Other Donor Resources to Project Participants

Particularly in Seguenega, the technical assistance, equipment, and materials available from other donors (e.g., foreign governments and PVOs and Burkinabe PVOs) provided some technical know-how in the ORD as well as some critical supplies and equipment. These complementary inputs, external to the project, reinforced project resources and enhanced the project's chances for success. For example, the German Federal Republic's medicines; the European Development Fund's (EDF) three compressors, jack hammers, and dump truck; and the maternity and lodging place built by the Ecumenical Council of Churches in one of the villages all helped to meet project needs. In Dori, cooperation has been more recent; existing PVOs tended to help those within their respective areas, and larger donors were not as prevalent.

4.3.5 Meeting a Priority Need

An outstanding example of an activity that clearly fulfills this criteria for impact is the "cereals bank"; these banks have been established with SCF assistance in DIRD. They are, in effect, local grain supply stabilization organizations. Village members sell some grain to the village cereal bank and retain the rest. When home stocks run out toward the end of the dry season, members can buy from the bank on credit at a modest interest rate, generally far below the inflated prices charged by grain

merchants. SCF provided initial capital to the village group organizing the bank, which then repaid it annually with the proceeds of the bank's sales to the members. The small price premium remained as a cash fund for the cereal bank and gradually accumulated. During last year's crop failures, the cereal banks received additional grants of grain from AID under PL 480. All eight cereal banks established in the Sahel are functioning effectively enough, with donor assistance to meet emergency food needs arising from the 1984 grain shortage. All the villagers participating agreed that the cereal banks had made a major contribution to helping them through the food crisis and escaping the merchants' inflated prices during shortages. Nevertheless, the continued functioning of the cereals banks is impaired by the lack of managerial skills of the groups' members, most of whom are still illiterate. The caisse, or cash fund, of one village bank was stolen by the recordkeeper. Also, as the cereal banks attract more members, they may arouse the opposition of displaced merchants. So far the demand they satisfy is small and may have hardly entered the merchants' market. Finally, if drought and destitution wipe out members' ability to repay their purchases on credit, the cereal banks themselves become casualties.

Although not meeting an emergency need as do the cereals banks, SIRD's road improvement program is another good example of meeting a priority need for markets and supplies from a wider area. However, the roads' continuing impact depends on the continuing willingness of village groups to provide manpower to maintain them. The team saw one hard-working crew of villagers recruited by the village representative of the CDR. SIRD provided heavy equipment for building the roads; the equipment is probably to be turned over to the local office of the Ministry of Public Works, which is to help with maintenance as needed.

4.3.6 Dependence on Expatriate Technical Advisers

Most expatriate advisers provided by Africare and SCF have been very useful, and problems arise more when specialized advisers are unavailable. This was true particularly in livestock and cattle activities. In one case, a livestock adviser stayed only 1 year, which was not long enough to establish innovative practices among the farmers. However, in other cases, expatriate health workers, a literacy adviser, and PCVs working with women worked well with villagers and stayed long enough to establish new activities firmly. Both projects have already phased out all expatriates (except the project managers) with little adverse impact on operations.

4.3.7 Institutionalization of Management Structure

With the phasing out of SIRD's expatriate advisers and external financing, Africare expects to complete its planned role in the project by the end of 1985. Because the Africare

expatriate staff and the Yatenga ORD branch have from the outset been totally integrated in the support unit for the Seguenega Department operations, departure of Africare should be no more than a completion of the process already far along. Credit operations are under the regional office of the Government's national credit organization. Health activities are provided by the Government health service. Heavy equipment maintenance is expected to be turned over to the Department of Public Works, and so forth. The participation of all these agencies will be coordinated by the local ORD director, who has worked closely with the Africare staff from the beginning. Without the special push provided by Africare's staff and expatriate advisers, however, the level of effort of the ORD and other Government agencies involved may decline, but this can only be determined after Africare leaves the project.

On the project beneficiary side, organizations have been established and over a period of at least 3 to 5 years village people have become accustomed to the services of the various development organizations. Forty-five villages have Village Development Committees; 24 extension agents were working in the villages during year 5 of the project; revolving credit funds exist and are being repaid at a high rate; the supervisory and support unit established by Africare and the ORD has been functional during the life of the project; viable producers' associations exist in all Type I villages (selected for major concentration of inputs) and in many Type II villages (selected to receive fewer services); the Seguenega Consultative Council (a subdistrict-level committee made up of representatives from the Village Development Committees) has been functioning for 2 years. Thus a demand for development support services in Seguenega has been created and a management system to provide these services has been established, with Africare being responsible for a diminishing share of services and Burkinabe Government agencies assuming most activities.

4.3.8 Sufficient Inputs To Make an Impact

SIRD is a good example of a project for which the PVO and the Burkinabe Government provide a mass of inputs in technical assistance, materials, and equipment at the provincial ORD headquarters in Ouahigouya and the ORD branch at Seguenega. Except for a few proposed activities that for different reasons were unsuccessful, inputs have continued for a long enough period to have given the activities a firm beginning. The "massive-inputs" approach has included such complementary inputs as roads to assist marketing of agricultural produce and adult literacy to enable villagers to manage their own credit groups. This horizontal integration of activities seems to be successful.

Equally successful in SIRD, but less evident in DIRD, has been the vertical integration of activities. Both Africare and the Burkinabe Government have provided equipment and training at departmental and provincial levels that have reinforced SIRD's work at the village level. In health, for example, Africare

assisted the Departmental Medical Center at Seguenega Town in enlarging physical facilities, including providing an ambulance for evacuation and a training center. It also supplied a mobile army surgical hospital to the Regional Hospital at Ouahigouya to help it provide support and conducted training for village health teams at the Seguenega Medical Center. This multilevel assistance and the organizational linkages established between villages, departments, and provincial levels appear necessary for continuing the impact made to date.

4.3.9 Choice of Activities Already Familiar to Villagers

Project impact has been much greater in activities with which villagers are already familiar. The widespread acceptance of vegetable gardening is a prime example: village men have formed groups for gardening, women have groups, and gardening is a major activity for Young Farmers Groups. Both Africare and SCF used the credit mechanism to provide initial funds for necessary inputs (e.g., wells, seeds, fencing, watering cans, shovels). Except in cases of insufficient well water for crop production, these gardens have added to family cash income and supplemented the family's diet. Another example of readily accepted activity was the women's blanket-weaving group in Dori. Activities requiring participants to alter materially their traditional ways risk failure. Such was the case with the village demonstration poultry flocks at Seguenega. Care and production of a better breed required their confinement, careful feeding, and tending, which were contrary to local habits. The imported chickens sickened and died, and the activity was a failure.

4.3.10 Early Receipt of Benefits

Production activities in which participants promptly receive the payment for their efforts are also much more likely to be permanently accepted. An important factor in the success of vegetable-gardening groups in Seguenega was the arrangement made by ORD to pay farmers quickly through the vegetable cooperative at Ouahigouya (URCOMAYA), rather than make them wait several months for payment, as had their former marketing outlet, the National Vegetable Cooperative in Ouagadougou. The SIRD's sheep crossbreeding and fattening programs also were prompt money-makers for the participants. When Bali-Bali rams from the Sahel are crossbred with local ewes, the resulting lambs can weigh twice as much when mature and ready for sale. Sheep were also easier for farmers to sell because one buyer took the whole animal; with cattle, a buyer might take only a portion, leaving the farmer with the remainder, which was difficult to preserve until he could sell it. The converse was true for reforestation projects. Even though Government policy strongly supports tree-planting, it produces no money or in-kind income for farmers. Consequently, villagers were not very interested and in some cases did not protect the trees adequately. As a result,

the goats destroyed the trees.

4.3.11 Availability of Credit

Unquestionably, the availability of credit from ORD or SCF made it possible for village groups to undertake a wide variety of activities that they otherwise would not have been able to do. Both projects provided advances of initial working capital at reasonable interest rates to fund purchases of materials and equipment or the stocking of a cereal bank. These advances were to be repaid within a few months or 1 year as crops matured or products were finished and could be sold. The groups kept the interest proceeds to build up working capital. The long-term impact of these credit operations greatly depends on the group's ability to manage their funds and on the Government's undertaking policy reform to change real interest rates and avoid decapitalization. The former may require basic literacy of some of the program takes hold. The latter is an external factor over which these area-specific programs have little leverage or influence.

4.3.12 Women's Participation

By specifically targeting women as participants and beneficiaries in many components during project design, the projects ensured the use of a major human resource in the villages. Women and men participate in decisions about group activities, and women are benefiting from personal income from vegetable gardening in particular. Although village women seem to prefer working with female extension agents when possible, success is also apparent with women's groups and male agents. This latter point is an important finding for continuation and replication of activities.

5. CONCLUSIONS

5.1 Village Group Approach to Development

Both projects used a participatory approach involving creation of awareness in the communities of the possibilities of group action for development. If the population has a tradition of community decision-making, as among the Mossi, the group approach is feasible. When there is not such a tradition, as among the Fulani, getting started on community development is much more difficult.

5.2 Sequencing of Project Activities

Once groups are formed, projects seem most successful when

they start with activities that are already familiar to villagers and that they found profitable. Those that benefit the entire village, as opposed to subgroups, also found early acceptance. For example, cereal banks and village health teams appear to be good starter activities because people are familiar with the practices of storing grain for future need and of trying to stay healthy, and both activities are accessible to and benefit the entire village. After the villagers' initial confidence has been won, activities directly benefiting only subgroups, such as vegetable gardening or improved sheep production, are more likely to be successful.

Successful sequencing also requires project management to plan and budget ahead for predictable future needs. For example, for health services, it can be foreseen that village health agents need to have basic literacy and computational skills to manage pharmacy stocks and that for continuity, they will need an ensured supply of those stocks. Similarly, with vegetable gardens, women will need to learn how to cook new vegetables, and all participants may need assistance in marketing for income.

To achieve greater impact, sequencing at the village level may also need to be supported by interventions at other levels or organizations. Construction and equipping of a health training center at the headquarters medical center or hospital, for example, turned out to be useful both in Seguenega and Dori as a means of ensuring better initial and continuing support for village health agents. Use of project funds for a revolving credit fund to purchase motorcycles for extension agents greatly helped coverage and monitoring of village activities in Seguenega. Absence of cooperation with the livestock service in Dori may have hindered overall impact in that area.

Strengthening the implementing organization (e.g., the Seguenega ORD and SIRD) or establishing linkages with the Government and the private sector is also an early requirement. Once the village group concept has been firmly established, then other activities directly related to broader and less internal needs, such as poultry centers or new stoves, or activities requiring cash investment are best postponed until villagers have had successes in other areas and are in a position to understand and accept the requirements of the new activity.

5.3 AID's Role

Even though AID financed SIRD, it has not been closely involved in project implementation. This benevolent noninvolvement is in accord with AID policy toward PVOs operating under operational program grants.

However, the USAID Mission has been supportive when needed by Africare and the Burkinabe Government, particularly in helping to solve procurement problems related to U.S. equipment. Nevertheless, AID's buy-America requirement on procurement has caused the project

some problems. For example, the Ford Broncos given by the project, although sufficiently durable, are gas guzzlers. The team observed one instance of an ORD adviser not being able to visit the site of an activity in an outlying village because there was not enough money for gas. Although the purchase of American vehicles for core project management at the ORD was in accordance with AID procurement policies, assignment of those vehicles to other ministries -- notably health -- ensured neither uniformity nor continuity in vehicle fleets nor cost-effectiveness in vehicle use. Project implementation might benefit if AID waived the U.S. origin requirement when non-U.S. products are more suited to intended use and maintenance.

Initial AID financing for DIRD was used up several years ago. SCF applied for a second grant, but because of its commitment to flexibility and creativity, it could not conform to stringent AID requirements for a detailed logical framework, and subsequently did not get a second grant. The program has continued, however, because of SCF commitment. AID has continued support through contributing emergency food grain to cereal banks to help meet food deficits in the area; it has otherwise kept its distance.

5.4 Beneficiaries

Where project activities have succeeded, the proposed beneficiaries have, in fact, been those intended in the project plan. The groups undertaking development activities do not appear to restrict membership within their villages, so any villagers may join and enjoy the benefits.

Africare, because of the rural roads improvement component and assistance to the Yatenga ORD, can claim to have benefited all of the 128,000 people of Seguenega in some way, at a cost per beneficiary of approximately $8.50 per year. SCF, although using a somewhat inflated beneficiary total of 15,000 people -- which includes all of Dori Town due to improvements at the hospital -- comes out to about $45 per beneficiary per year. SCF's relatively higher cost can be explained as a necessary start-up investment for their 25-year project commitment, whereas Africare's shorter project duration was predicated on Africare leaving behind structures and technologies that could be sustained by the Burkinabe Government and people. The team suggests that a cost-per-beneficiary equation does not represent a true criterion for impact and that other types of analyses, such as cost benefit, would be more appropriate where data were available.

The income multiplier hardly works in the villages. First, incremental income from most activities is still small, and the number of participants in important income-generating activities, such as sheep fattening and gardening, is also small in relation to the entire population of the sector. Increases generally are spent on consumption of goods from the area and payment of taxes. As a result of the limited multiplier effects, the circle of beneficiaries remains mostly within the village.

5.5 Impact in Relation to AID's "Four Pillars of Development"

5.5.1 Institution Building

The integrated approach to rural development as carried out by Africare and SCF places great emphasis on institution building. Sensitizing villagers to development possibilities they can themselves undertake and helping them establish community action organizations is a major step in creating village institutions for development activity. The Burkinabe Government's capacity to staff development projects has also been strengthened. Several ORD personnel who obtained training and experience in Seguenega have now been transferred to ORD offices in other parts of the country and will take with them the knowledge they gained in Seguenega.

5.5.2 Technical Assistance

Bringing technical assistance to the village level has also been a major feature of both projects. Africare and SCF have both provided expatriate technical advisers and also administered major training efforts for Burkinabes in such areas as agricultural extension, health, adult literacy, and teaching. After 5 years, both projects have enhanced local capacities to organize village development activities as well as increased local technical knowledge.

5.5.3 Policy Dialogue with the Burkinabe Government

Although area-specific integrated rural development projects undertaken by PVOs may prove useful as test beds for policies, their influence on government policy is limited. The impact of policy dialogue with the Burkinabe Government in terms of furthering or changing policies was limited by the project areas' distance from the national Government and by the relatively narrow focus of project work. For example, in their credit schemes, neither SCF nor Africare could gain approval of the Burkinabe Government to set interest rates higher than 10 percent, although inflation in Burkina Faso is running much higher and the local population is used to paying up to 100 percent to traditional moneylenders.

5.5.4 Private Sector Development

These projects were intended to promote community development action and consequently did not focus on private sector

activities. However, both projects worked, when appropriate, with and through the private sector. At the village level in Seguenega and Dori, the private sector consists of small shopkeepers. The villagers have supplemented their food supplies during shortages with purchases from private merchants in provincial centers, who have charged interest rates up to 100 percent on crop loans and sold grain at inflated prices during the dry season. The projects have sought to counteract such pressures on the villagers. As yet, the projects appear to have evoked little reaction among merchants, probably because the project villagers' demand is small in relation to merchants' activities. Also, the projects are creating a new, effective demand among the villagers.

5.6 Replicability

Given time, resources, the dedication of the staffs of Africare and SCF, and sufficiently trained Government personnel, SIRD and DIRD should be replicable. Critical factors are (1) the capability to invest a large amount of multisectoral resources, as was done in SIRD, and (2) the presence of community action traditions, as seen with the Mossi but not evident with the Fulani. SCF's village-by-village approach requires less input, but in turn, has a more limited impact.

5.7 Recurrent Costs

Both Africare and SCF have considered how to make these projects self-sustaining and have taken steps to do so. In activities using credit, the working capital rollover and the accumulation of a cash fund owned by the group from interest charges (e.g., cereal banks, vegetable gardens, village pharmacies) is an ingenious device to achieve this, although prone to inexperienced management by the village groups. Villagers learning credit management through working with other experienced villagers is essential to strengthening the village's capacity to carry on eventually without outside support. A few of the Ministries' employees (e.g., Health, Education) have been accepted into the Civil Service, which pays their salaries. However, most ORD employees are not in the Civil Service and their future depends on ORD's capacity to continue financing them. In the long run, according to Africare's carefully made plans, SIRD should be supported by the villagers' funds generated through their various activities, with some technical assistance provided by the Burkinabe Civil Service and the ORD. At this stage, these villagers would have difficulty maintaining many of the activities, particularly, with the added burden of surviving the drought.

5.8 Integrated Rural Development as a Management-Intensive Undertaking

Field staffs of both SCF and Africare emphasized this statement to the evaluation team: professional and often personal "burn-out" seems to have a higher incidence in integrated projects than in single-sector undertakings. SCF has gone through four project managers, Africare through two -- all of whom express exhaustion from their efforts. Juggling the needs of villagers and a desire for logical sequencing with politicians and leaders, the Government, home offices, and AID policies and practices seems to require more than a 24-hour day. Trying to achieve an improved level of living for impoverished farmers makes for a demanding assignment, given such overwhelming factors as drought, famine, customs, gasoline shortages, labor laws, and lack of vehicle parts. The evaluation team commends all who have taken part.

5.9 Assessment of Impact

Assessment of impact might be accomplished most effectively through monitoring chosen proxy indicators rather than relying too heavily on inadequate baseline surveys. Baseline studies intended to measure impact usually cannot meet the needs of all project components. However, on-the-ground staff assessment tends to provide operational knowledge.

5.10 The Multisectoral Approach

In the multisectoral approach, there will be some key components that have important social benefits (e.g., forestry, roads). The ability to subsidize these components, perhaps by the government, a PVO, or outside source, must be assessed as the project is planned.

5.11 Policy Changes

Long-term, major policy changes or initiatives by the central government may be necessary to maintain the project's impact. Examples of such policy changes are development of basic water resources and encouragement and provision for emigration to areas with sufficient resources to support an increased population.

5.12 The Integrated Rural Development Approach

The integrated rural development approach is viable for other PVOs, provided they are in a position to contribute the management-intensive effort made by Africare. Given Africare's thorough planning and the selection of a region amenable to

development, and the ability to sustain a high level of inputs over at least a 5- to 6-year period, the approach should succeed. The looser organization of SCF's Dori project seems less rewarding although it was hardly given a fair test in drought-stricken Sahel Province. The openness of the local population to help is essential to this approach. Some expatriate advisers, at least in the first year, are essential in such fields as credit, livestock development, and agricultural extension. For agricultural production to improve market access are essential. Credit is needed to finance villagers' production activities; programs in literacy and basic computational skills are needed so that villagers can administer their own credit organizations and learn how to improve their agricultural production methods. Although general health improvement makes the whole community function more effectively, health programs are not so directly related to increases in production and income. Individual agricultural production activities should, of course, vary depending on the nature of resources, the agricultural experience of the population and the marketing and consumption characteristics of the population.

6. LESSONS LEARNED

1. Expect a slow start-up.

2. Plan for at least an 8-10 year input of external resources to solidify the impact made in the first 5-6 years.

3. Select an area with some tradition of community action.

4. Select an area where pilot projects have been successful, where other donors activities are complementary to the project.

5. Integrate horizontally to achieve greater impact from mutually reinforcing activities; integrate vertically to achieve sustainability.

6. Stack the cards for success by beginning with projects that have the maximum impact. Lasting impact is not achieved unless preceded by success. Criteria essential to success include the following: (1) priorities expressed by villagers themselves, (2) the introduction of activities already familiar to villagers, (3) villagers prompt receipt of income from their work, and (4) availability of appropriate technical advice for a sufficient period to establish activities.

7. Select a capable PVO and ensure that appropriate and sufficient government resources are devoted to the project; then leave responsibility for implementation with the local government and PVO.

8. Consider temporary relief if natural catastrophes or unforeseen problems occur in the project areas.

9. Plan for future financial support by rolling over credit extended, building up village's own financial resources, and developing management skills.

10. Consider the overall supply and demand situation for each product that farmers will produce. Also ensure marketing facilities permitting prompt payment of producers, transportation to markets, and so forth. Consider untrapped markets that could be reached if some basic improvements were made (e.g., roads, cold storage).

11. Assume a more frequent turnover in management and plan for more constant or frequent home office support to relieve pressures.

12. Choose project activities that fit with local customs, traditions, and practices, or at least do not conflict with them.

APPENDIX A

PROJECTS' GOALS, COMPONENTS, TARGETS AND ACCOMPLISHMENTS BY THE END OF 1983

Table A-1. SIRD Project Goals and Physical Accomplishments by the End of 1983

Goals	Components	Targets	Accomplishments (or lack of) by End 1983
1. Increase capacity to deliver basic human services at the village level largely through the villagers themselves the villagers themselves	Health services	Establish 30 village health teams (serving 53,000)	Achieved
		Establish 30 village pharmacies (serving 53,000)	Achieved
		Upgrade Sequenege Medical Center:improve dispensary, maternity, maternal and child health (MCH), nutrition, recuperation, and central pharmacy to support work of 5-7 village health teams and general support to work of 4 health posts (serving 53,000)	Achieved

	Upgrade 3 village hlth posts: improve dispensary, maternity, and MCH services	Achieved	
	Establish referral procedures: establish evacuation of serious cases from the 30 villages to the health posts, medical center at Seguenega, and hospital at Ouahigouya	Achieved	
	Establish procedures for hospital support of lower levels of the system	Achieved	
	Improve access to safe drinking water by digging 25 new village wells and wells at 3 health posts	Achieved	
Adult literacy	Establish 30 village adult literacy centers	23 cntrs opened, 481 students	
	Train 2 instructors in each center (60 total)	29 male instructrs trained	
		30 female instructrs chosen	
Young farmer training	Establish 10 young farmers training centers	330 students	
	Establish 10 young farmers pre-co-ops	688 members	
	Establish 4 youth clubs	169 members	
Support services	Construct 64 wide-diameter wells of various types*	27 wells completed; 37 wells started & in various stages of completion	

Improve rural access roads	Achieved, but with continuing need for some repair (106 km)	
Initiate revegetation and soil conservation activities covering 150 hectares (ha) over a period of 5 years	25 ha of trees planted but only 40-50% survived	
Train 2 people in use of dynamite in wells and 2 well equipment-maintenance mechanics; give additional administrative training to 1 well crew chief	Achieved	
Establish tree nursery capable of producing up to 50,000 trees per year	Nursery capable of prod. 28,000 seedlings per year establ.	
Establish conservation unit capable of carrying out soil, water, and vegetation activities for villages	Not acheived despite continuing efforts	
Provide ORD support for administration and management of the rural development program for Seguenega through revolving funds and marketing services (discussed in detail under goals 3 and 4 of this table)	(See goals 3 and 4 of this table)	

*25 village wells; 24 vegetable garden wells; 9 primary school garden wells; 3 health dispensary wells; 2 forestry nursery wells; and a poultry and sheep farm well.

2. Improve planning and management capabilities of Organization for Regnl Development (ORD) and other Government of Burkina Faso agencies	Supervisory and support unit at Seguenega	Establish a system to collect, evaluate, and monitor develop- information on Sgeuenega	Achieved not only for Seg- uenega but for all of Yatenga Province
		Develop an overall land-use and resource employment plan	Burkinabe technician trained in U.S. in map design & interpre- tation
			Map de- picting soil, water, & vegetation developed
			Workshops held on map inter- pretation
		Establish revolving credit system - to permit more timely inter- vention in marketing act- ivities for cereals and vegetables	System est. with re- covery above 90 percent
		- to purchase motorbikes for sale on credit to Government technicians on project	Recovery rate of 98 %
		- to purchase tools and supplies for local craftsmen	Recovery rate of 96 %
		Construct and equip Ouahigouya ORD head-	Headqrtrs constructed

		quarters and train-ing center	bath in Ouahigouya (Seguenega) Lack of economist & eco. in-put at ORD headqrtrs.
3. Increase production and productivity of people through increased opportunities, for food production, contributions of free labor, and financing by villagers	Vegetable production	Train 50 extension agents and 150 farmers in vegetable-gardening techniques	15 Village Groups (VGs) whose 400 members have rec'd in-service training
		Exploit 16 ha of commercial village gardens and 4.5 ha of village school gardens	13 ha ex-ploited & 8 ha of old Africare plots; 4 ha of vil-lage school gardens
		Organize VGs responsible for contracting and repaying credits contracted on behalf of its mem-bers and determin-ing disposition of land and supply of labor to establish gardens	Achieved with 96% credit re-payment rate; pro-ducers receive their pay-ments fr. Yatenga Regional Marketing Cooperative (URCOMAYA) less than 1 month after harvest
		Assist each VG to become a member of URCOMAYA	Achieved
		Provide technical assistance from ORD extension worker to VGs	Full-time Burkinabe specialist who is on civil serv. payroll

			Vegetables have entered diets of villagers (e.g., potatoes, carrots, cabbage, tomatoes)
			Stopped emigration of young villagers out of participating villages
Price production	Establish 100 ha of lowland rice production, to be carried out by producers' associations	100 ha of lowlands prepared for rice cultiv. but much diverted to millet due to drought affecting nonirrigated millet lands	
Livestock and poultry activities	Distribute 250 Bali-Bali rams and 8,000 roosters for crossbreeding (later revised to 1,500 roosters)	300 Bali-Bali rams were distributed in exchange for local sheep; a total of 199 Bali-Bali sheep were distributed in 1984 for both crossbreeding and fattening 1,009 hens and cocks were distributed	
	Established a poultry center and 25-50 village demonstration flocks	6 demonstration flocks were started (including one at the Center), of	

		which 3 currently exist; demonstration flocks started at Young Farmrs Clubs (CFJAs)
Establish revolving credit fund for livestock fattening established for up to 200 cattle and 400 sheep per year (cattle fattening activity has been dropped)		A total of 300 Bali-Bali sheep, and 4 cattle were fattened thru 1983; a total of 199 Bali-Bali sheep were distributed in 1984 for both cross-breeding and fattening
Establish revolving credit fund for supplemental livestock feeding for up to 300 tons of feed per year		A total of 436 tons of supplemental livestock feed has been distributed through the revolving fund
Provide basic veterinary health services throughout the sector, supported by a revolving fund for medicines		Livestock health and veterinary services (including availability of medicines) have been improved in the sector
Provide training for 60 farmers per year in improved livestock production techniques		At least 65 extension agents have received 5-10 days of training in

		small ruminant production	
	Provide training for 60 farmers per year in improved livestock production techniques	At least 1,350 farmers have received some trng. and "sensitization" in small ruminant and/or poultry production techniques	
	Prepare long-range market development plan for livestock	Production activities study done by Africare forms a basis for more complete market studies for poultry and small ruminants	
	Establish a multiplication center for pure-bred Bali-Bali sheep, allowing a self-sustaining flock with 500 births per year by year year 5 (proposal adopted from mid-term evaluation 1982)	The Multiplication Center has been est. as of 1983, with a current flock of about 70 head	
4. Increase participation of rural people in planning, implementing, and managing rural development projects	General village development	Establish functioning Village Development Committees (CDVs) in 45 villages	Basically achieved
	Provide 1 male and 1 female extension agent in each of 12 Type I	Basically acheived	

	villages	
	Establish revolving credit fund - $26,500 agricultural credit for equipment and expendable materials - $13,000 women's credit for same - Self-help fund for small village projects	Basically achieved
	Provide specialty skills training for 20 local residents in each of 12 Type I villages	Basically achieved
	Establish the Seguenega Consultative Council (SCC) at subdistrict Headquarters in Seguenega to serve as collective body for 45 CDVs	Achieved

Table A-2. DIRD Project Goals and Physical Accomplishments by the End of 1983

Goals	Components	Targets and Accomplishments (or lack of) by End of 1983
1. Create effective decision-making process for articulation of community needs and implementation of programs to meet those needs	Community citizens councils and sub-ordinate groups for execution of local community development planning	After the initial AID grant was completed, the Save the Children Federation-USA (SCF) did not continue to use the detailed purpose/goal project framework, so assessment of degree to which physical output targets have been acheived is not possible. However, the accomplishments and status of these various activities are discussed in detail in the other appendixes.
	Training for above groups	
2. Develop projects in agriculture, animal	Preparation and execution of projects in	

production, health services, education, and transportation

following areas:

Health

- Village health agents
- Support to Dori Hospital
- Assistance to Recuperation Center
- Traditional birth attendants

Productivity

- Grain mill
- Village stores
- Arts and craft center
- Women's sewing groups

Agriculture/Environment

- Cereal banks and grain marketing
- Improved village gardens
- Production and technology of arid lands (1984)
- Supply of drugs and care for cattle (1984)
- Restoration and improved wood stoves
- Education training
- Training
- Functional literacy
- School infrastructure

3. Develop local financial policies to ensure recycling of local resources into the economy

4. Integrate efforts of existing Burkinabe Government and private voluntary organizations (PVOs)

5. Propose procedures and methodologies for replication of successful portions of program

APPENDIX B

GOVERNMENT POLICIES AFFECTING PROJECTS

1. INTRODUCTION

The nature of the general development policies of the Burkinabe Government has, of course, been reflected in the

organization and operation of the Seguenega Project. Particularly important has been the way in which the Yatenga Organization for Regional Development (ORD) has been organizationally integrated with Africare, Inc.'s representatives. The relevant policies and ORD organization are explained below.

2. EVALUATION OF BURKINABE GOVERNMENT PLANNING POLICIES

Until 1983, Burkinabe development plans had been simply collections of project plans. Political instability weakened the planning system. The Third Development Plan (1977-1981) was prepared but not applied after the fall of the regime of the Third Republic in November 1980. The "Program Discussion" of the succeeding government was published and served as a reference but could not be translated into an action plan before that government fell in November 1983. The primary objective of both plans was satisfaction of the food needs of the population through agricultural development.

A positive step, however, was the creation of a National Commission for Agrarian Reform, based on recommendations of the Second Conference of the Cadres of the Ministry of Rural Development. The Commission is charged with adapting both modern laws and traditional customs, recognizing the right of tenure of herders for their pastures, regulating the distribution and/or installation of migrants on virgin land, and establishing a fair market value (in cash or kind) for agricultural land.

The planning philosophy and system of the current regime is in the process of elaboration. According to discussions, the plan is oriented toward a mechanism with several levels of responsibility, conception, and action at sectoral, provincial, and national levels. Under the Sectoral Development Program (SDP), each operational department is to prepare a 2-year plan of action. Although not yet published, the primary plan objective in rural development is expected to be food self-sufficiency achieved through increased cereal production. A large project for development of the Sourou Valley is expected to become a key factor in the realization of this objective. The Sectoral Development Program basically, and logically, includes those projects requiring major investments. The provincial program is the Biannual Development Program (BDP); its philosophy is to give the project beneficiaries the initiative to define their needs and to determine the means and resources necessary to satisfy those needs. These basic resources are local, particularly human capital. The contribution of the state and external financial resources would come in a second phase. The SDP and BDP are to be submitted to the Ministry of Plan and Cooperation, which codifies, corrects, approves, or transfers the projects to different levels. A final document is then returned to the province or operational department concerned.

In the Province of Yatenga where the Seguenega Integrated Rural Development Project (SIRD) is located, the BDP exists in final form. Its cost is estimated at FCFA 900 million. More than 60 percent of the projects initiated by the villages are in the sectors of health and education: construction of dispensaries, maternity clinics, pharmacies, primary schools, and lodging for teachers. In second place is the rural development sector: village wells, livestock wells, small dams, and water control works for agricultural use. In third place is the commercial sector: projects to develop cereal bank stores and warehouses. The BDP would be 73-percent financed by the resources of the beneficiaries. The remainder would come from external financing or the public sector. The feasibility and monitoring forms for projects exist in and are to be maintained by village Committees for the Defense of the Revolution (CDR) and by regional and provincial agencies.

The BDP of the Province of the Sahel follows the same principles of self-sufficiency and development as does that of the Province of Yatenga. The overall cost of the programs, which does not include the cost of village participation, is approximately FCFA 60 million. The order of priorities is as follows: (1) water development (e.g., reservoirs and range wells); (2) reforestation with local and drought-resistant species; and (3) national education to "encourage the young Fulani to leave life as a herder," in accordance with the provincial authorities long-term plan to promote settlement and hopefully more efficient use of land.

Regarding the potential integration of the Save the Children/Community Development Foundation (SCF/CDF) in the planning for development of the province, the provincial authorities explained their desire to see the SCF/CDF zone of intervention expanded to more villages and to include activities in water development, such as building village and range wells and reservoirs.

3. ORGANIZATION OF REGIONAL GOVERNMENT

During the late 1970s the ORDs, which are charged with applying the policies of rural development at the regional level, had become inefficient because of poor management. Their debt was valued at FCFA 2.6 million (approximately $5,417.00) by March 31, 1982. Part of the revitalization effort focused on reducing this debt; one means of doing so was to move the ORD field staff from the ORD payroll to the national Civil Service payroll. This financial assistance from the state had the effect of finally enabling the ORDs to become what the original statute decreed: autonomous organizations whose personnel were freed from the uncertainties of the ORD's financing and personnel operations. The increased attention to organization of the rural areas yielded two relatively positive results: an increase in the number of Groupements Villageois (village groups, or GVs), and the elaboration since then of a Presidential Order signed in May 1984. This order consolidated the GVs and gave them a moral

and legal mandate to certain economic authorities, such as direct access to agricultural credit without having to pass through the ORD.

Another Presidential Order (No. 83-021/CNR/PRES/IS of September 1983) established a revised organization for regional and local government. Under this new order there are now 25 provinces, each with approximately 200 departments, and 7,000 villages clustered into communes.

4. ORGANIZATION OF RURAL DEVELOPMENT ACTIVITY

The Ministry of Rural Development follows a slightly different functional and geographic division. It divides the country into 11 ORDs. Each ORD is divided into geographic sectors. There are now a total of 63 sectors. Each sector is divided into subsectors, and each subsector comprises several villages. In Seguenega, the following two principal changes have occurred because of the new ordinance:

1. The former Department of the North, which was governed by a prefect, has become Yatenga Province and is governed by a high commissioner, within the same geographic limits.

2. The former Subprefecture of Seguenega, administered by a subprefect, who was also president of the Seguenega Consultative Council for SIRD, has been divided into two departments: Seguenega Department, which comprises 99 villages, and Kalsaka Department, which comprises 45 villages. This change, however, has affected neither the composition nor the function of the Seguenega Consultative Council (SCC).

The high commissioner of Yatenga Province basically assumed all of the functions of the former prefect of the Department of the North with regard to representing the authority of the state. All of the governmental agencies and entities in the province report periodically to him. As with the former prefect of the Department of the North, the high commissioner of Yatenga Province is president of the Administrative Council of Yatenga ORD (also referred to as the ORD of the North). There are, however, the following two new factors that reinforce the authority of the high commissioner: (1) he is a strong and respected member of the local CDR and (2) he has much stronger budgetary authority. In the future, it is planned that the province itself must pay for water, electricity, telephone service, contract personnel, and building maintenance for the state.

The territorial limits of Yatenga ORD coincide with those of the province of the same name. The ORD is under the Ministry of Rural Development and is in theory a parastatal organization. It is the implementing agency for SIRD. Given the integrated,

multisectoral nature of SIRD, different technical services in the province (as opposed to the ORD) are also involved with SIRD: Public Health, Hydrology, Public Works, Water and Forests, and National Education. The personnel of these technical services are delegated to the ORD but are not actually under the authority of ORD: they work at the ORD but under and with the full authority of their respective technical services. This collaboration between the ORD and the technical services is effective. The services provide monthly reports to the various sectoral chiefs of SIRD, but their work, knowledge, and experience is not lost to the technical service.

Several specialized rural institutions have been created in the ORD system nationwide: GVs for men and women; Comit s de D veloppement Villageois (Village Development Committees, or CDVs); Comit s de Sant Villageois (Village Health Committees); and numerous subcommittees and other institutions created by specific projects. In general, villagers show little concern with the different functions of these institutions and, in fact, seem to confuse them. The strategy of creating multiple rural institutions for rural development might be better limited to a few institutions or reformulated entirely.

Working relationships between the villagers and extension staff of the ORD within SIRD are reported to be sound and efficient It appears that because of the sustained contact with these ORD workers, the villagers or the project area have become more open to innovations.

At the same time, it seems that the meetings of the Seguenega Consultative Council benefit from the strong and active participation of village delegates. It appeared to the team that the SIRD project has indeed become well known and popular throughout the province and has promoted a certain spirit of area development.

Yatenga ORD has centered its activities around SIRD. A recent Report on Recurrent Costs clearly reflects that the personnel of the ORD give much time to SIRD. Further, the travel costs and benefits of the ORD staff for SIRD are disproportionate: $130,900 for the period of October 1983 to September 1984 for SIRD against a total budget for the ORD of only $320,300. Various bilateral and multilateral organizations working in rural development operate through ORD structures; for example, the World Bank Rural Development Fund and the European Economic Community work in lowland agriculture and soil conservation with the Rural Lands Management Division. The National Bank for Agricultural Credit calls upon the Division of Rural Institutions and Credit and the field staff of the ORD for its operations. The evident reason for use of the ORD is an effort to reduce personnel and traveling costs.

The former Department of the Sahel where the SCF/CDF project is located has undergone the same changes as has Yatenga Province because of Ordinance No. 83-021-CNR/PRES/IS. It has been divided into two Provinces: the Province of the Sahel and the Province

of Goum.

SCF/CDF also works through the following technical services at the provincial level: Public Health, National Education, and the ORD. Working relationships appear to have been established, but on-the-ground coordination seems not to be operational. Nonetheless, some coordination appears to exist with the ORD in agricultural work.

APPENDIX C

GENERAL VILLAGE AND COMMUNITY DEVELOPMENT

1. OVERVIEW AND PREPROJECT STATUS

Burkina Faso comprises more than 50 tribal groups, tradilly organized in a variety of ways and speaking over 50 dialects or languages. Contact with the West was virtually nonexistent until the early 1900s, and French colonial structures after that time essentially coexisted with traditional forms of organization and administration at the village level. Since independence in 1960, the country has experimented with a variety of forms of sociopolitical organization, including two attempts at multiparty democracies, a long period of a fairly benevolent military regime, and a recent (August 1983) move to a still evolving, military-dominated National Revolutionary Council (CNR).

Each government has worked to include the people in the decision-making processes through one or more participatory structures. What has evolved is a melding of traditional, developmental, and politico-administrative efforts at the village level in Burkina Faso that is worth noting. A brief description of each of these three facets of broad participation, with particular attention to the Seguenega and Dori project areas, is discussed below.

1.1 Traditional Organizational Structures

Each of the more than 50 ethnic groups has a traditional form of governance, ranging from the virtually acephalous comities of the Bobo peoples in the southwest to the remnants of the feudal Tuareg federations in the northeast. The Mossi, who represent 48 percent of the total population, in particular have retained many of the traditional ways in their tightly knit agricultural villages in the central part of the country; in fact the Emperor, or Moro Naaba, holds court at his palace in Ouagadougou to this day.

The Seguenega Department (formerly subprefecture) where Africare, Inc. has worked is almost wholly Mossi. The population lives in approximately 144 farming villages, ranging in size from

a few hundred to almost 5,000 people. The extended family is of primary value. The overall village structure is hierrchical, with a village chief usually inheriting the position and taking advice from a council of older men, who are usually from the more important families. Women, youth, and a few occupational groupings, notably blacksmiths, rarely have a voice in the decisions made at this higher level, although as noted below their counsel may be sought.

For economic and social activities of a less worldly nature, most of the Mossi villagers have a traditionally accepted means of organizing and expressing themselves. All villages have naam, which are age and often gender-based work groups organized for reciprocal labor. A women's naam, for example, might work a collective field to earn grain to use for important celebrations, such as baptisms and marriages. Men in a young men's naam might share work on each others' fields to help earn money for a youth center. Although membership lists and written records of these organizations are nonexistent, they have been an important force in community life of the village. Naam leaders might be consulted by the chief on certain occasions, and the groups have been recognized in village life. They transcend the more fundamental family ties and strongly reinforce the Mossi's integration into the community. A key concept of Mossi life, in sum, is the sense of community. Acts which are viewed as benefiting the individual more than the community (the family, the village, or the broader Mossi empire) are generally subject to disapproval.

In the Dori/Sahel area where the Save the Children Federation-USA (SCF) works, a much greater melding of diverse ethnic groups is found. Probably the dominant group is the Fulani, a traditionally pastoral society that can be characterized as seminomadic, moving in a fairly standard pattern with their animals, depending on the availability of water and range. In precolonial times, the Fulani were organized in a semifeudal system, with a separate ethnic group, the Rimaibe, as their vassals. The Rimaibe did not move as much as the Fulani and often tended the fields at a home base while the Fulani males were on the range. Less is known about their traditional organization because, since the colonial dissolution of what was in effect slavery, they have had to develop new means of dealing with both the outside world and their own residential groupings. A simple survey conducted under the Government of Burkina Faso/AID project Training Women in the Sahel, however, did record traditional groupings of women similar to the Mossi naam, again to take charge of important community celebrations.

1.2 Developmental Structures

Following models established in several other developing countries, Burkina Faso has chosen to separate on a subnational level the management of general administration, including tax collection and law and order, from that of development. In 1970-1974, it established 11 Organizations for Regional Development (ORDs) with boundaries that coincide with the 11 administrative departments. The ORDs were charged with the planning and

implementation of economic development, primarily agricultural, and were initially targeted to be financially autonomous within the Burkinabe Government. They have gone through many changes in focus and administration since their inception and are now emphasizing agricultural development above social aims. (For a more in-depth discussion of ORDs, see Appendix B.)

The outreach approach used by the ORDs is primarily based on the French animation rurale (an extension approach by which villagers are encouraged to assume development activities). This is essentially a process by which an outside change agent (a male animateur or a female animatrice) assists the village in recognizing and marshalling its own resources toward developmental goals. Although animation rurale has existed for some time in Burkina Faso, it was not until the early 1970s, with the introduction of significant external assistance and the creation of the ORDs, that it became structurally formalized nationwide.

In the mid-1970s, the ORDs were supported by the World Bank in the southwest and by the Food and Agriculture Organization (FAO) in several smaller scale locations in fielding several teams of animateurs and animatrices to form and mobilize village groups to serve as participants and recipients in development activities. Initial efforts focused on the introduction of animal traction, often through having the group work a collective field. Today, these agents work through the ORDs in many villages across the country. A national administrative order delineates the rights and responsibilities of the modern village groups (GVs).

Although the ORD of the North (Yatenga, where the Africare project is located) was formed early in the 1970s, at the time of design of the Africare project Seguenega had no resident animateurs or animatrices, and only a few of these more modern village groups had been formed. The Sahel ORD was not staffed until 1976, and then at only a skeletal level. Because primary external funding of ORD activities was for agricultural purposes, the remote, livestock-oriented Sahel ORD had virtually no experience with the personnel or practice of animation rurale.

1.3 Political and Administrative Structures

Both the colonial French Government and several subsequent national governments in Burkina Faso have essentially pursued a policy -- often unwritten -- to coexist and collaborate with traditional ethnic organizational units. They have also in most cases recognized the "separate but equal, almost" status of ORDs, in that the ORDs often represented substantial foreign assistance and have usually coordinated efforts toward shared goals at regional and village levels.

The Burkinabe political administrative structure has always accepted ethnic diversity, primary allegiance to an ethnic group, and ethnic rulers. Although rhetoric concerning nation building

is evident, no government to date has either explicitly or implicitly attempted to outlaw or deny the plurality of systems. Indeed, most have sought to build consensus (occasionally playing groups against each other to maintain power). This approach is strikingly different from that of some other governments of sub-Saharan Africa and worth noting.

The recent national administrative order creating a series of Committees for the Defense of the Revolution (CDRs), including one in every village of the country, may be important for the future of the two projects. The village CDR is charged with both developmental and politico-administrative objectives. Although it is much too early to predict how the CDR will interact with the traditional organizational structures and the modern village groups of the developmental structures, they are an entity that should be watched.

2. ACTIVITIES IN THE COMPONENT

2.1 Seguenega Integrated Rural Development Project

2.1.1 Description of the Component

The overall goal of the Seguenega Integrated Rural Development Project (SIRD) was to improve the quality of life of the nearly 110,000 (now 128,000) people who live in the Seguenega Sector of Burkina Faso. The measures of goal achievement are increased per capita income for the people of Seguenega and increased participation in all aspects of the process. The overall project purpose is "to achieve an improved network of social services, production opportunities and supportive services within the Seguenega Sector."

The beneficiaries of the project were to be the 110,000 people of Seguenega. Actual direct beneficiaries (and participants) would presumably be those people in the 45 Type I, II, and III villages. This typology was initially defined only in terms of project inputs: essentially, the Type I villages would have extension agents and one of everything the project had to offer; Type II would have less, but still some services; and Type III would simply have village groups with access to services and awareness of the services they might obtain. No means of choosing these villages was given; criteria were to be developed after a baseline survey was completed. One point on beneficiaries may be important: the proposal very clearly specified numbers of male and female participants.

The cost of the general village development component over the 5 years of the project was originally projected at a total of $481,600, broken out as follows:

-- $412,000 of AID funds were to provide U.S.

short-term and Burkinabe long-term personnel, including some local training, commodities, credit ($52,500), equipment for construction, and prorated costs of Africare administrative support. The largest single appropriation was for Burkinabe personnel ($113,500).

-- $69,600 would come from the Burkinabe Government or the villagers and be designated for personnel, training, and "other," presumably local materials donated for self-help projects.

No funding from the Peace Corps or other donors was envisioned. The cost per beneficiary of approximately $4.50 over the life of the project and the mix of inputs appears appropriate. Given the paucity of experience in rural credit, it was difficult for Africare to set a budget.

2.1.2 Findings and Analysis of Impact

From a management standpoint, SIRD has made an impressive achievement at the village level. The goals, components, targets, and accomplishments of SIRD are summarized in Table A-1 in Appendix A. A discussion of the quantity and quality of achievements and overall impact follows.

Quantitative Measures of Output Related to Targets

With the exception of the number of villagers receiving specialty skills training, all original targets have essentially been achieved. At the "output" level, 45 villages have Village Development Committees (CDVs); 24 animateurs and animatrices were working in villages during year 5 of the project; revolving credit funds exist and are being repaid at a high rate; the Supervisory and Support Unit was functional during the life of the project; over 12 self-help projects have been completed; viable producers associations exist in all Type I and many Type II villages; and the Seguenega Consultative Council (SCC) has been meeting and actively discussing the project for 2 years.

The only particularly important point on the quantitative achievements is that most came much later than planned in the project: the classification of villages as Type I, II, and III did not occur until around 1980 and the animateurs and animatrices were not posted until 1981 or 1982. Only about two thirds of the programmed CDVs were functioning by October 1981. This sort of delay is not unusual in the implementation of any project in Burkina Faso; the team was told by the USAID Mission that a 2-year start-up period is normal. The delay, however, is important for impact to date and continuity of activities.

Quality and Appropriateness of Outputs

In terms of linking the "outputs" achieved to higher level impact (in AID terms, "purpose" and "goal" level indicators), SIRD is impressive. The villagers are organized to take advantage of more development options, and they are investing time and energy in exploitation of those options. The project has established critical linkages between the traditional, developmental, and administrative structures that mesh at the village, departmental, and ORD levels. These linkages are consonant with Burkinabe Government policy and accepted developmental theory. They are well enough established, and flexible enough, to adapt to the administrative guidance of the new National Revolutionary Council (CNR) Government; that is, they appear to be absorbing the concept of the village-level CDR. Issues of participation and equity within villages and the region and prospects for continuation of benefits and increased local initiative are discussed below.

Participation and Equity Within Villages. Recent development literature suggests that "participation" -- by whichever typology and definition one chooses -- is less of an issue in poorer countries, and the project in Seguenega seems to support this view. Given the extremely short duration of the team visit and the necessity of using project and ORD interpreters, it was impossible to gain a wholly objective, widespread assessment of the equity of participation in decision-making, implementation, or benefits. Team members familiar with Burkina Faso tried in many ways to ascertain whether the village committees were simply reinforcing existing systems, skewing benefits more dramatically, or serving to broaden the distribution of benefits to more of the population. The tentative conclusions follow.

1. Villagers' participation is growing in decisions made about development activities in their villages through the various project structures. According to a variety of donor and Burkinabe Government documents, the larger villages the team visited all have the following "developmental" or "administrative" groups:

-- A Committee for the Defense of the Revolution (CDR) to initiate and guide villagers in maintenance of the revolutionary ideals and actions.

-- A village group (GV) to work with the ORD in development activities, primarily agricultural production. Often villages are expected to have a groupement hommes, or men's group, and a groupement femmes for the women. The activities of women's groups are often less clearly defined but include work in cooperative fields.

-- For villages in Seguenega and elsewhere that have donors who collaborate with the Ministry of Rural Development, a Village Development Committee (CDV), which covers all socioeconomic development activities. It appears that this committee has somewhat broader developmental responsibility than the simple GV.

-- Subgroups for specific activities, such as a gardening group, a milling group, and an agricultural group, within the overall donor or ORD program.

-- A Village Coordinating Committee to manage the Agriculture Training Centers, where they exist. There are six functional ones in Seguenega. In those villages, there should also be a Young Farmers Group of Center graduates. These young men are to farm collectively and bring new agricultural ideas to the villages.

-- A Committee for Village Pharmacy Administration to manage the Village Pharmacy accounts and to undertake environmental sanitation advocacy in the villages. In Seguenega, the team was told that these groups are just being formed.

What the team also found in villages visited was a group of villagers -- often up to 100 -- who called themselves naam. When asked to identify other groups, they said "yes, we have one, we are it." In villages of 500-700 people -- certainly the more representative of villages in the Mossi plateau -- this response seems appropriate. Those who have the time and inclination to participate in decision-making are doing so; they do not subdivide themselves. There appears to be self-selection or selection based on age or gender in some activities.

These evolved naam groups do appear to have broader participation in addressing external affairs than before. The team observed women and youths sitting with the elders and contributing comments and ideas when asked. The groups also are dealing with many more entities, including banks, foreign donors, the Ministry of Health, and the Ministry of Public Works. Given the tradition of having male village elders take this role, observing -- however superficially -- a larger group doing so suggests to the team that some evolution of "participation in decision-making," at least at the village level, is taking place. The higher level Seguenega Consultative Council (SCC) is -- from the village side -- wholly male, suggesting that this evolution of participation does not yet extend to representing the village in external affairs. Total equity in organized representative groups probably does not exist, but the decisions being made are likely to result in equitable implementation and benefit distribution.

2. Access to the increased goods and services brought about through project implementation does not appear to be limited to any particular group or groups. Although it is certain that select small groups -- the blacksmiths -- are not members of the Village Development Committees, they are benefiting at least from the social services components of the project.
In one village, the project has extended a loan to a group of blacksmiths' wives, who are traditionally (lower caste) potters. The team was told that village chiefs often work alongside village youths in self-help construction activities. Although some concerns were expressed about Mossi "princes" reclaiming

lowland areas for themselves after permanent improvements have been made, little evidence of inequitable participation in project implementation was found.

3. Lack of equity or participation in benefits does not appear to be an issue. Traditional village chiefs seemed to be members of committees or "are made aware of what the committee is doing." Given the stress on sense of community over sense of self-gain, the team was repeatedly told (in response to possibly offensive questions) that an individual simply could not gain more than other individuals without severe sanction from the community. Early choice of group activities (e.g., cereal banks, village pharmacies, village wells) were noted by village groups as being specifically chosen because they could benefit the whole village. It is probable that a long-term resident anthropologist could indeed find correlations between higher (traditional) social status, greater access to land and water, a greater voice in the groups formed, and greater benefits. The villages, ORD officials, and disinterested observers from other ethnic groups, however, do not believe this to be true.

Equity Among Villages in the Region. It was never made clear to the team how the Type I, II, and III villages were chosen. Apparently, a Burkinabe consulting group did a study, but most informants suggested it was not as complete as it could have been. By plotting the villages on a map and reviewing the 1975 census data, however, the consulting group produced a sound spatial distribution of activities within the project area of Seguenega. Between 55 and 60 percent of the population of Seguenega resides in those villages, and the Type I centers are well distributed as cores of activity. Higher levels of activities seem to coincide with higher levels of population. Distribution of activities and benefits did not appear to be a problem in the area.

1. Through Zonal Committees and the Seguenega Consultative Council, representatives of the population can participate in decisions regarding distribution of project activities throughout the Seguenega Department. This decision-making is still at basic levels; however, Village Development Committees can say "yes" or "no" to activities proposed by ORD or administrative staff and can presumably propose other activities themselves, although no record of the latter happening and being implemented was discovered by the team. The SCC, which represents the villages, the ORD and development ministries, and the administration, apparently comprises a very lively discussion group. Although the team did not get to observe a meeting, it was told that the SCC does in fact make programmatic decisions. It does not, however, have control of the budget -- a responsibility maintained by Africare, with assistance from the ORD -- so its actual power in implementing decisions is limited.

2. Distribution of goods and services by ORD staff within the ORD -- which encompasses five other geographic sectors besides Seguenega -- does appear to be rather skewed, however. An assessment of recurrent costs conducted by Africare in December 1983 estimates the following:

"We estimate that the general administration of the ORD... spends about 5 months yearly on the Project." Deductive reasoning suggests that 7 months are left for the other five geographic sectors in the Yatenga ORD.

"The office of management and finance is estimated to spend about 3 months yearly on project-related activities."

"The Chief of the Planning Office of the ORD spends about 6 person-months in the year on project activities."

There are other examples to support the concern that the staff spent an inordinate amount of its human resources in the last 3-5 years on implementing the Seguenega Project, with less effort given to other geographical sectors. The team was unable, because of time constraints, to visit those other areas. However, one administrative official interviewed, who was closely associated with SIRD and is now in a neighboring area noted that people in the new area are asking him why they cannot have a project like SIRD. Although this stimulation of demand for development activities is certainly encouraging, it is suggested that the other geographic sectors suffered at the expense of the ambitious and well-financed efforts in Seguenega.

2.1.3 Outlook for Continuation of Activities

SIRD has been fully operational for 4-5 years and is beginning to close down. Impact in terms of increased participation and increased marshalling of human resources at the village level has been noted; there is concern within Africare, the ORD, the Burkinabe Government, USAID/Ouagadougou, and the villages that at the end of the project some of this impact will be lost. The team agrees that it is a valid concern.

The overriding issues are those of timing and management. It has already been noted that extension agents were not working in the villages until 1981-1982, and the village groups did not take on their wider organizational responsibilities until that time. Thus, most of these groups and the higher level SCC have been operating for less than 2 years. Although their spirit and stated objectives regarding continued development activities are noteworthy, they still appear to be more in a "receiving" rather than "initiating" phase of activity as groups.

Groups that had repaid loans and undertaken new ones exist; groups that had initiated activities outside the domains of the project could not be found. That is, the traditional naam groupings exist and are carrying on their traditional activities; concrete evidence of these or other broader groups using skills learned to initiate other activities was not found by the team. The team did come across a group of volunteers from several villages repairing a section of road under the auspices of the local CDR. Some informants from outside the village had suggested

to the team that skills learned under the project were indeed being transfered to the CDR, and this may be one example. Because of the newness of the CDR, it is too soon to comment on this possibility. Without the continued support and attention of the project, the groups could revert to their previous focus on internal affairs, turn into truly representative local government institutions, or be co-opted by central political aims. This is an area that should be watched.

It is still unclear how much management attention Seguenega will -- or should -- receive from ORD as (or if) Africare phases out. In theory, the village structures and skills learned are self-sustaining, so there should be no loss. These groups, skills, and activities have been reinforced over the past 4-5 years by frequent visits by ORD staff but appear to still need reinforcement. The primary reason they were created, however, (or evolved to their broader state) was for SIRD. Without this raison d'etre it is quite possible that the SCC will not meet and that the CDVs will retreat to their previous emphasis on internal affairs.

Africare's "Assessment of Recurrent Costs for and of Other Contributions to the SIRD Project" of December 1983 demonstrates that many costs have already been assumed by the ORD and that the project can continue. With the unfortunate and notable exception of the female animatrices, most staff has been absorbed by the ORD and there is reason to believe that the staff will remain posted to Seguenega. Certainly the intense management efforts of the central ORD staff will diminish if Africare leaves, and the headquarters in Seguenega will be even barer than its current skeletal state. Funding and staff appear to be in place to continue most efforts in village development; the impetus toward improved well-being, or project spirit, however, will probably be lost and any initiatives will take much longer to develop.

2.2 Dori Integrated Rural Development Project

2.2.1 Description of the Component

The overall goal of the Dori Integrated Rural Development Project (DIRD) may be stated as to "improve the quality of life for people in selected communities of the Sahel Region." A slightly narrower goal, developed for the AID Grant Proposal, was "to significantly improve rural life in four target villages in the Sahel Region through the integration of Village and Government programs by June 1980." No specific indicators of goal achievement were given, although extensive measures in various sectors, such as water resources, health and nutrition, agriculture and gardening, animal production, education, youth activities, income production, and construction were developed for the AID grant. This grant ended in 1980; no specific indicators developed since that time were made available to the team.

The project purpose stated for the AID grant is "to create a pilot community-based integrated rural development program beginning in the four villages of Bafele, Diomga, Mamasiol, and Selbo, working collaboratively with interested Burkinabe entities." Although the project has been underway for 6 or 7 years, the following list of the "objectively verifiable indicators" for purpose achievement under the (2-year) AID grant helps to illustrate what the Save the Children/Community Development Foundation (SCF/CDF) was attempting to do in community development:

-- SCF/CDF will play a decreasing role in project implementation, which becomes a village committee responsibility. SCF/CDF's revolving fund will facilitate this process.

-- SCF/CDF will have held at least 12 planning sessions with each of the community committees per year.

-- Eight village committees (four men and four women, according to accepted cultural practice) will be established (for the four villages).

-- Planning and evaluation responsibility will lie with the village committees.

-- Each village committee will have formulated yearly plans.

-- Sixteen subcommittees will be formed.

-- At least one economic productivity institution will be established.

In sum, the purpose is basically to help villagers organize and, through that organization, to take charge of their own development. They are to be active participants in, rather than passive recipients of, community development. SCF/CDF has had extensive experience worldwide with this approach; success depends on the activities with group formation and problem-solving leading to other, more concrete activities. The premise of the development of a community as an entity that works together forms the base on which all else builds.

At the output level, again as stated in the AID grant, specific targets for "Planning and Evaluation" and "Training" at the village level were stated as follows:

-- 24 village-level institutions will be formed and able to accomplish the following:

- Identify 16 problems through needs assessment and baseline data

- Set short-, medium-, and long-term objectives

- Collect, share, and analyze decision-making information

- Develop multiyear plans

- Measure whether goals were met

- Modify goals based on prior learning

-- 132 village leaders will be trained in community self-management and planning, as follows:

- 48 in overall village committees

- 80 in subcommittees

- 4 in economic productivity institutions

-- 2,500 community people will be exposed to the community-based integrated rural development approaches to productivity and social infrastructure building

With this organization and training, the specific self-help projects discussed in Appendixes C-J would be undertaken. The success of the communities' "increased capacity" would also be measured through their ability to locate and use resources other than their own or those of SCF/CDF. At the end of the AID grant, it was hoped that village committees would have contacted at least 10 government or nongovernmental services themselves, without SCF/CDF acting as an intermediary for information or project implementation. It was also hoped that 24 village-level institutions would be able to assess and identify internal and external resources. (The goals and accomplishments of DIRD are listed in Table A-2 in Appendix A.)

Project beneficiaries would be the people of the four communities, estimated at approximately 3,000-3,500 villagers; this figure later went up to around 7,000 people with the additional villages. Most written information clearly specifies numbers of male and female participants and beneficiaries.

The cost of the community development portion of either the AID grant or the overall SCF/CDF program cannot be broken out because the community-based development efforts underlie all else. Budgetary information available to the team was not detailed enough to estimate any specific costs, either for the overall community efforts or on a cost-per-beneficiary basis.

2.2.2 Findings and Analysis of Impact

For overall impact to date, SCF/CDF's DIRD may be considered ered at "the takeoff point" after 6 years of implementation. A discussion of the quantity and quality of achievements follows.

Quantitative Measures of Output Related to Targets

As of June 1984, the SCF/CDF program in Dori is working in eight target villages, as follows:

-- Three of the original four villages from the AID grant -- Mamasiol, Selbo, and Diomga -- and a fourth new one, Sambonaye, which are Fulani and Rimaibe villages and are within 25 kilometers of Dori Town

-- In Falangountou and Gomo, almost 60 kilometers to the northeast, near the Niger border -- predominantly Djerma and Sonhrai villages

-- Gangaol, south of Dori, which is also a Fulani-Rimaibe village; some activities are also carried out in neighboring villages of Tiblindi, Diatou, and Karga

-- The "Touka" villages -- Welde, Bayel, Wendou Korna -- north of Dori off the road to Gorom Gorom, which are Fulani-Djerma villages

Activities have also begun in Dori Town -- notably provision of almost $70,000 for construction of outbuildings at Dori Hospital and widespread work with a Women's Cooperative. It was not clear to the team whether SCF/CDF was enlarging its model of the community-based integrated rural development program to include Dori Town, thus leading to more spatial integration of activities, or whether these activities had been undertaken as "targets of opportunity" outside of the holistic community-based approach. For the purposes of this analysis, the activities in Dori Town will not be considered because they did not appear to result from this approach. A brief discussion of the assistance to the hospital is found in Appendix D.

To meet targets, men's and women's groups -- Central Committees have been formed in each of the eight villages. The team was told that subcommittees have also been formed. However, in one village, when the men's committee met with the team, it appeared that all the Central Committee members were also members of all the subcommittees. Given the small size of the village, however, and the relative inexperience of the Rimaibe and Fulani people in working together, this is not considered negatively. In a Djerma/Sonhrai village, the women did not view themselves as in any group other than their sewing group, although the men said a parallel "Women's Central Committee" existed. Self-selection and selection by age and gender appear to be a factor in group formation, and as in Seguenega, the existence or lack of specific subcommittees in the Dori villages seems to be of little importance at the village level.

Little specific information was available to the team about numbers of persons trained in planning and management or numbers of contacts made without SCF/CDF help. The evaluation (undertaken by SCF/CDF staff) near the end of the AID grant (June 1979) notes some numerical progress but emphasizes that little had

really been accomplished because of the organization's inability to locate, hire, and train field staff. At that time, the evaluation team noted: "To date 21 village level institutions (i.e., committees) have been formed, and nine other committees are currently in the process of formation. These committees can identify needs and express these needs, but cannot do any of the other things mentioned without SCF help." It appears, then, that although quantitative targets can be said to have been met, these targets are meaningless without looking at the quality of what the groups are doing.

Quality and Appropriateness of Outputs

Given the diverse, and somewhat sensitive, nature of the ethnic groups in the Dori area, it was more difficult for the team to determine the extent of village participation and equity than in Seguenega. A few observations follow.

The Concept of Community. The critical role of a Central Committee in actually helping the village take charge of its own development and the concept of community do not yet appear to be an organic part of village life in the SCF/CDF villages.

In the Fulani/Rimaibe villages, SCF/CDF still appears to be the outside entity for whom they organize. When asked about activities they had undertaken, they listed the activities in terms of SCF/CDF; when asked about other activities, such as work with the new Committee for the Defense of the Revolution (CDR) they were perplexed. This is not unexpected; the Fulani-Rimaibe have very little experience with group activities. The team asked how they undertook activities for the whole village prior to SCF/CDF, and they responded, "The Chief would call in all the heads of household and tell them what to do and we would do it." The team later asked what the group would do were SCF/CDF to leave. They responded, "We would know the approach and the skills but we probably wouldn't do anything because we have no money." Although this response may be partly attributed to the propensity of the Burkinabe villager to appear as poor as possible to a potential foreign donor, the team concluded that it does not appear that the skills in community development being learned through the community-based development work have yet spilled over into other aspects of village life.

In the Sonhrai village, with a tradition of groups similar to the Mossi naam, there was also a sense that the SCF/CDF work was still outside the mainstream of the village. That is, most villagers seem to participate in these activities, but again, the skills learned in community development do not seem to have been transferred. When asked about the relationship of their traditional work groups to the various SCF/CDF committees, they seemed perplexed. The concept seems to be accepted, but the transfer to being part of village life has not yet been made.

The Committees' Representativeness of the Community. The committees (or groups) that do exist seem representative of the

community, within cultural limits. In the two villages where group meetings were possible, membership in the Central Committees, although all male, included representatives from each of the sections (quartiers) of the village. In the more delicate Fulani-Rimaibe village, the group of 12 comprised 9 Rimaibe and 3 Fulani. The team was told by SCF management that they had tried to skew activities to the Rimaibe because they were much more interested in the approach and were more in need. Within this group of interested and needy persons, then, representation of male heads-of-household seems to be villagewide.

In both the Fulani-Rimaibe and the Djerma-Sonhrai villages the team was told there were separate Central Committees for men and women. The team could not locate any women who agreed they were members of such an entity in either village, although women were aware of SCF/CDF activities and are participating in them (primarily sewing, although vegetable gardening and maternal and child health care were also mentioned). It appears they make their views known through the men. Although agreeing that this is a cultural trait, the team notes that the women's group in Dori Town -- which includes a number of women from the same ethnic group -- deals with outsiders on their own. The contact with SCF/CDF on overall issues in the village seems to be only with the men.

Access to Goods and Services. Access to the increased goods and services brought about through the project implementation generally are available to all. The team was told that SCF/CDF normally adds approximately 20 percent to its population estimates for such groups as cereal bank users to account for people from satellite villages and for relatives. In one village, the group told the team that it did not sell grain to the people from Bafele -- the village that had opted not to work with SCF/CDF. It is unclear if this was because of SCF, the village, or the paucity of grain caused by the drought. Other activities seem open to people, although gender and age do guide participation. Certainly the traditionally less well-off Rimaibe are, if anything, benefiting more than are the Fulani in the villages.

Village Group Linkages. Few if any linkages have yet been established to enable the village groups to deal directly with government, private, or other nongovernmental organizations, although this step is expressly planned for the immediate future. For example, SCF has organized some buying trips for cereal bank managers to go to Ouagadougou to buy grain from private traders, but none have yet done this on their own. Village health agents and midwives are trained at the hospital but still get their supplies renewed from SCF/CDF stocks (although this responsibility may be shortly turned over to the hospital in Dori Town). In at least one sewing group, SCF/CDF still provides the fabric, thread, pins, needles, and buttons. Current project management has plans for establishing better linkages with government and private institutions; this is certainly an area that needs attention because the villages are too small to have much leverage on their own.

2.2.3 Outlook for Continuation of Activities

The team was told by SCF/CDF management that the organization usually makes a 20-25 year commitment with a program; certainly if they were to leave the Dori area in the near future, very little would be left. Possible explanations for the slow pace of achievement and the lack of true impact are noted below.

SCF/CDF attempted to establish itself in Burkina Faso at the same time it began project implementation. Many indicators of achievement under the early AID grant were more concerned with office establishment and staffing than with program or project achievement. The original project managers were also SCF/CDF country representatives. They had to register SCF/CDF as a recognized nongovernmental organization in Burkina Faso, obtain their duty-free status, hire and train administrative and accounting staff, and basically establish their identity with the Burkinabe Government and nongovernmental sector while initiating a project in the most remote part of the country. If one assumes that this would take 1 year at a minimum and adds the generally accepted 2-year start-up time to projects in this country, the lack of achievement does not seem so startling. In hindsight, choice of a more accessible area, with groups more accustomed to community activities, might have been more appropriate.

In the early years, SCF/CDF worked independently of the Government. The various governments of Burkina Faso have generally recognized the value of nongovernmental organizations -- both indigenous and foreign -- and have not attempted to co-opt or dictate to them. In Dori, the meager developmental (i.e., ORD) and administrative infrastructure probably welcomed a group that was clearly set on working where the Government is not present. Although this choice of approach has allowed for more flexibility in programming and implementation, it has its drawbacks. An example is that SCF/CDF activities available to villages seem very much predicated on expertise of staff at any given time. The team noted that a livestock activity might have great appeal to the pastoral communities; SCF/CDF management agreed but said that the home office kept sending vegetable-gardening specialists The work they were able to do was therefore limited to gardening. The Dori ORD has had a fairly active livestock branch since its inception; project management is only now beginning to explore the possibility of closer collaboration with this entity in meeting village aspirations.

The communities selected for initial activities may not have been the most appropriate for the community-based integrated rural development approach. Although this approach closely parallels stated and practiced government policy about formation of groups for developmental purposes (the GVs), this policy has been developed and practiced primarily in the settled agricultural villages with long histories of traditional organization. It might have been more appropriate to introduce community-based development in an ethnic group with such a tradition, or to use a

different extension approach for working with the Fulani-Rimaibe communities. As stated earlier, the concept only now seems to be taking hold in those villages.

3. CONCLUSIONS

The approach of forming groups to undertake development activities appears valid and useful in Burkina Faso. Working through representative groups seems to be an effective means for ensuring equity and may decrease administrative costs and management time. Where possible, building groups on existing traditional organizations seems to hasten project implementation. Allowing self-selection for subactivities appears appropriate.

Group formation and action in early years is probably best handled as an internal village affair. As the village-specific groups learn about benefits to the entire community, they appear to be more able to extend this awareness to broader concerns outside the village. This increasing external awareness may be captured and strengthened through establishment of contacts and linkages with governmental or private sector entities that can support group actions. Maintaining a more internal focus, with the voluntary agency as the major outside contact, may create dependencies that limit sustainability in many specific activities.

The extent to which broader village groups engage in any real decision-making or actions regarding affairs outside of the village may be limited by factors external to the projects. Although in these cultures a group may have more leverage than an individual, the national political climate can certainly support or limit their effectiveness. Given the current, evolving nature of the Government of Burkina Faso, it is difficult to predict whether these groups will take on the tasks of truly representative local government, return to more traditional internal affairs, or be co-opted by national political rhetoric that may or may not emphasize equitable socioeconomic development.

APPENDIX D

PRIMARY HEALTH CARE

1. OVERVIEW OF HEALTH SITUATION AND PREPROJECT STATUS

Table D-1 well reflects that Burkina Faso, as one of the poorest countries in the world, is also one of the least healthy by almost any standard. The rural population lacks basic knowledge of even the most rudimentary types of preventive health measures, and harsh environmental conditions -- most notably lack of water -- do not support easy practice of such

measures. Traditional health practioners in villages base most curative efforts on ritual and supernatural guidance, with little research available to document curative successes. Parasitic, bacterial, viral, and nutritional disorders are the principal health problems, with malaria, respiratory ailments, diarrhea, and intestinal problems the most commonly treated ailments. Epidemics, particularly of measles and meningitis, are common. Recurrent malaria is a fact of life for most of the population.

Health activities in both the Seguenega Integrated Rural Development Project (SIRD) and the Dori Integrated Rural Development Project (DIRD) have included Government of Burkina Faso health programs as integral components. The structure of the Ministry of Health is set forth in Figure D-1. With regard to health care activities by nongovernmental organizations (NGOs), several of which have contributed technical assistance and medical supplies to the projects, the Government has to date pursued a laissez-faire policy. Health service statistics presented in Table D-1 do not generally reflect the number of expatriate doctors, nurses, and educators serving with NGOs, nor do nutritional figures include calculation of widespread feeding programs and supplement foods. The NGOs vary widely in integration and/or collaboration with Government health systems, and little data are available to evaluate their impact on policy or overall health status.

Table D-1. Basic Population and Health Indicators for Burkina Faso

Area:	274,122 kilometers
Resident population:	5,638,203 (1975 census) 6,200,000 (mid-1981 World Bank projection)
Population density:	22 inhabitants per square km. (1981)
Percent urban:	9.1% (1975 census)
Percent under 15 years of age:	45.3% (1975 census)
Rate of natural increase:	2.4% (1980-85 World Bank projection)
Intercensal population growth rate, 1960-1975:	1.7% (includes effect of net emigration)
Total fertility rate:	6.5 live births per woman (1980-1985 World Bank projection)
Crude birth rate:	48 per 1,000 population (1980-1984

	World Bank projection)
Life expectancy at birth:	35-40 years (1976 Post Enumeration Survey)
Infant mortality rate:	161 per 1,000 (1976 Post Enumeration Survey)
Proportion of children dying before age 5:	270 per 1,000 (1976 Post Enumeration Survey)
Crude death rate:	24 per 1,000 population (1980-1985 World Bank projection)
Literacy rate:	7.5% (1975 census)
Percent enrollment in primary school:	17%
Percent of population with access to safe water:	25%
Population per physician:	50,000
Population per nurse:	3,650
Population per midwife:	27,200
Population per hospital bed:	1,625
Daily per capita calorie supply:	1,900-2,000 (over 90% of required standard)
Daily per capita protein:	56 grams (as of late 1970s)
Daily per capita animal protein consumption:	4 grams (as of late (1970s)
GNP per capita (updated by 1982 World Bank economic mission):	US$210 (1980)
Government per capita expenditures in health:	US$3.2 (1981)
Overall per capita expenditures in health:	US$6.0 (1981)

Source: World Bank country statistics, and World Bank, Upper Volta Health and Nutrition Sector Review, July 30, 1982.

Figure D-1. Burkinabe Government Health Structure

To see Figure D-1, please order a paper copy of Document Number PN-AAL-080

2. HEALTH ACTIVITIES UNDER SEGUENEGA AND DORI DEVELOPMENT

2.1 Seguenga Integrated Rural Development Project

2.1.1 Description of the Health Component

The overall goal of SIRD is to "improve the quality of life for the 110,000 people of Seguenega." Specific and quantifiable measures of how these health activities will change the quality of life of the villagers are not stated, but the stated purpose of the health component is "increased availability of health services at the village level largely through the villagers themselves." The targets and accomplishments in the health program are set forth in Table A-1 in Appendix A.

The Revised Project Proposal included a total of $812,000 for health activities over the 5-year period, broken out as follows:

-- $616,000 of AID funds would go toward personnel (including a U.S.-hired health educator), some training, a small amount of commodities, a small revolving fund to support village pharmacies created by village health teams, and construction and renovation of the wells and buildings at the health posts and Seguenega Medical Center. Note that approximately $100,000 of this amount -- or about one-sixth of the AID funding -- was prorated coverage of Africare, Inc. support costs, such as expenses incurred for the Project Representative and Project Administrative Assistant.

-- The Government or villagers would contribute the equivalent of $128,000, primarily in training costs.

-- Other donors -- primarily other NGOs operating in Seguenega -- would contribute the equivalent of $67,500, primarily for personnel and operating costs.

Funding under another component would support village well construction, and the credit component of the project would support vegetable gardening activities. No economic or financial benefits were calculated for the health delivery portions of the component. As Government per capita expenditure for health care in 1982 was $6, in hindsight the under $1 per person per year additional investment by Africare appears appropriate.

2.1.2 Findings and Analysis of Impact

The project has generally achieved all the initial quantitative targets stated in the Revised Project Proposal. The discussion that follows looks at impact in two dimensions: quantitative measures of increased access to services and quality and appropriateness of the services. A final section on the Seguenega project will discuss the outlook for continuation of both services and benefits.

Quantitative Measures of Increased Access to Health Services. Although time constraints only allowed the team to verify the presence of village health teams in a 20-percent sample, it is likely that 30 village health teams are operating in 30 villages with a total 1984 population of approximately 53,000 persons and that each of these teams has established a village pharmacy. Three health posts have been upgraded, with ensured water supply and tap water (carried from a nearby well to a cistern and pumped to a rooftop holding bank), and one health post has been constructed. The Medical Center at Seguenega has been upgraded with several new buildings, an ambulance, a pharmacy, and medical equipment.

There have also been some developments that were not planned Three additional health posts have been constructed in Seguenega Department by other means (villagers, other NGOs). The French Government, through its Volontaires du Progres (VP), is providing assistance to a widespread malaria-prevention campaign and has established 15 village pharmacies and upgraded the skills of more than 20 traditional midwives. The German Government, through its volunteer program, has continued to provide volunteers and material support to both the Nutrition Rehabilitation Center associated with the Seguenega Medical Center and to a mobile maternal and child health clinic that appears to have wide coverage. The Government has followed its new national policy noted above and, in 1981, posted a full-time medical doctor to the Seguenega Medical Center.

The people of Seguenega now have better access to primary health care services than most of the rest of rural Burkina Faso. This increased network appears to be used by villagers, at least for curative services. Records in two village pharmacies in large villages (population of more than 1,000 people) indicated 120-150 monthly visits to the pharmacies when drugs were available. Discussions with four retrained traditional midwives suggested that most, if not all, births in the villages benefited from the simple preventive measures they had learned (most importantly, application of disinfectant to prevent infections). Visitation records for all health posts and the Medical Center were available only from 1980 through 1982, but attendance rates were comparable to those in other health facilities in rural West Africa, providing evidence of access, even in the newly opened posts. The team calculated approximately 0.61

visits per person per year in Seguenega Department in 1982 based on collated figures obtained from Ouahigouya Hospital, as compared to 0.47 per person per year nationally. The team did not have time to collate more recent data for 1983 and the first part of 1984. Although these figures are low on a worldwide basis, given the situation in Burkina Faso, the 1982 figures for Seguenega are encouraging.

Discussions with personnel at the Seguenega Medical Center and with the chief nurse at one health post suggest a slight decrease in visits for basic first aid (e.g., bandaging cuts, providing asprin) because of the presence of village pharmacies. Personnel in Ouahigouya, Seguenega, and Kalsaka all independently offered that there has been a marked decrease in incidence of neonatal tetanus over the last 5 years. This observation supports the argument of improved skills and access to basic disinfectants.

No evidence could be found of inequities in delivery of services at any level in the area. Health education and outreach programs are free when presented in the village. Fees for drugs at the pharmacies are minimal, ranging from FCFA 5-15 (less than $.05) for most visits, whereas drugs at the health posts and the Medical Center are free with the doctor's prescription. One extension agent noted that people will often pay for only half of a recommended dosage to save money. Her analysis was that people could afford the full course, but that they preferred to use the "saved" FCFA 10 to buy tobacco. Although it is certain that some villagers are too poor to buy drugs at the pharmacies, the increased coverage of health posts means that they need not be excluded from medical care.

Quality and Appropriateness of Services Provided. Although it is evident that the project and collaborating institutions have achieved impressive gains in coverage over the last 5 years, the quality of those services is mixed. The establishment of a village-based primary health care system is consonant with Burkinabe Government and World Health Organization (WHO) policies and is certainly appropriate and probably cost-effective for Seguenega. Some of the elements of the system are not yet functioning as hoped, however.

None of the village health agents interviewed said that they undertook many preventive or promotive health activities in the village. Further, several appeared to be confused over issues of responsibility for promotive work. For example, use of oral rehydration therapy for diarrheal disease is included in the training (observed by the team) of both village health agents and traditional midwives. All six of the village health agents questioned indicated that it was not their role but that of the traditional midwife to teach such things. Three midwives suggested that the female extension agent or mobile maternal and child health clinic of German or French volunteers taught such things, and although one midwife said she engaged in outreach, it could not be verified. In sum, it did not appear that much outreach or health education was being undertaken by the health

teams.

It also did not appear that the midwives or the village health agents were collecting any basic health or demographic information as originally proposed, other than the pharmacy records, which are scanty. The midwives can provide the number of births when asked, but written records were not discovered. One village health agent volunteered to record births and obtain birth certificates from the regional authorities when requested (birth certificates are required for primary school enrollment), but because a birth certificate costs FCFA 200 (about $.50 cents), he had few requests to do so.

The quality of curative services provided at the health post visited and at the Seguenega Medical Center, however, were impressive by rural West African standards. A large and relatively well-stocked pharmacy contained only one out-of-date medicine at the health post, and outside of a general and widespread shortage of malarial supressants, medications appeared appropriate and adequate. All facilities were neat; records appeared to be meticulously kept; and medical personnel interviewed seemed competent and committed. The buildings and wells constructed with Africare funds appeared solid and appropriate to the environment.

The following concerns regarding quality of service delivery surfaced: the availability of vaccines, the management of the village pharmacy revolving funds, and the means of evacuation to higher levels of the health care system. These are discussed in more detail in the following paragraphs.

1. It is unclear whether Africare or the project ever became involved in any vaccination campaigns or the provision of vaccines to establish the proposed "revolving fund." Given the continuing high incidence of measles and other diseases, this remains an area of concern in the overall health delivery system. Because of the uncertainty of fuel provision and the total lack of electricity in the Department, establishment in Seguenega of refrigeration facilities required for certain serums does not seem feasible nor particularly desirable in the near term. The provision of vaccines or widespread vaccination campaigns may be more appropriately handled at the national level for the next 3 to 5 years.

2. Although the pharmacies appear to be in use, problems exist with drug supplies. Village agents seem to be conscientious about depositing funds received at the Seguenega Medical Center; the Center, in turn, deposits the funds in a bank in Ouahigouya, about 56 kilometers away, and waits 2-3 months until it has enough village orders to justify a trip to Ouahigouya or Ouagadougou to replenish stocks. As the village health agents tend to reorder drugs only when they have completely run out, a delay in supply and potential decrease in credibility results. In addition, the complementary, but potentially competitive, programs in subsidized distribution of antimalarials from the maternal and child health program further confuses management

problems. The supply lines will need to be clarified as the program expands.

A more detailed discussion of the qualifications of village health agents, and their management of village pharmacies, particularly in regard to agents' literacy and records management, is found in Section 3 of this Appendix.

3. Regarding medical evacuations, the provision of a Ford Bronco to the Medical Center at Seguenega does not appear to be a lasting contribution to the health care system. Although the vehicle is still running after 5 years of heavy use as both an ambulance and a means of transport for supervision, it consumes a great deal of gas and cannot be maintained in Seguenega. The Medical Center would like to have villagers cover the full cost of evacuations, but they suggest that because the vehicle consumes 40 liters of gas per 100 kilometers (7 miles per gallon), it is simply too expensive for the villagers. As no depreciation was included in the original analysis of the project, and the vehicle cannot be expected to last much longer, it is fairly certain that another means of evacuation will be required.

2.1.3 Overall Impact and Outlook for Continuation of Activities

Data on health status in Burkina Faso in general and on Seguenega in particular is limited, often unreliable, and rarely current. Africare did plan to obtain some baseline data. The Revised Project Proposal stated that a first step of the project would be to survey existing health problems, resources, and needs in each village. The exact functions of the village health agents and midwives for Type I and Type II villages would be defined only after the village surveys had been completed, the candidates had been selected, and the service priorities established on a community basis. Although the Africare health educator and her co-workers visited many villages and were familiar with the health probems, no formal survey was ever undertaken. The Type I villages seem -- appropriately -- to have been chosen on the basis of population (all have more than 1,000 inhabitants) and geographical spread, and the Type II and Type III villages were chosen on less well-understood criteria. No baseline data exist to measure change over time, except through reconstruction.

In the absence of such data, however, certain impacts have been noted:

1. At a minimum, 30 village groups in as many villages have participated in the selection of village health agents and have supported the promotion of modern health practices in their villages. Many of the villages have constructed small one- or two-room buildings for their pharmacy, and often an additional village maternity building for the retrained midwife. A small sample suggests that at a minimum 10 percent of the total village

population uses the pharmacy. This basic impact -- acceptance of the utility of improved health care -- is a significant first step. The attitudinal change involved should not be dismissed lightly.

2. The training of personnel and the establishment of the pharmacies did not really begin until 1980 or 1981, which means that there is little experience in the villages and the administrative (health) structure with maintaining these activities. Experience in Niger indicates that these volunteer workers will have an annual attrition rate of 25-30 percent. Having made the gains in attitudinal change, it will be important to ensure that the problems with supervision and supply lines are corrected so that the system maintains at least a status quo. Growth and expansion (i.e., more emphasis on outreach) should not be undertaken until the Medical Center improves supply lines, or a major loss of credibility will result.

3. Medical and health personnel in and near the project area believe that neonatal tetanus has decreased significantly over the last 5 years. Given the number of other NGO activities in Seguenenga, particularly those concerned with maternal and child health, the effects of Africare SIRD cannot be definitely shown. The improved skills of midwives and their high acceptance of the new methods and simple medicines suggest that the project can claim to have achieved success in this area.

4. Six health posts and one medical center are clean, comfortable, and seemingly useful places in which to work and to receive treatment. Drugs are reportedly available year-round (at one point from Africare but now from a variety of sources); staff is in place (at least one nurse and one formally trained nurse-midwife at the health centers); and people seem to be using the facilities, at least for curative health. This increased access to services is impressive.

5. Given the serious drought of last year and the consequent low recharge of all wells in the area, there were severe water shortages at the time of the team's visit. It was therefore impossible to determine any impacts from increased availability of safer water or improved personal hygiene practices involving water (i.e., washing more frequently). Because of the drought, the area was also experiencing a food shortage, and famine was beginning to appear. Given that the team visited during the hottest and driest months of the year when most fresh vegetables are unavailable, questions on increased vegetable consumption were treated with puzzlement. Cross-checking with extension agents, however, suggested the following: (1) the wells program has not contributed to a change in health status, except perhaps in the villages where hand-pumps work and women have to exert less effort to draw water (when there is enough water for the pumps to work); and (2) many vegetables grown under the gardening program, including potatoes, are probably exchanged for millet or sold for cash, resulting in a possible net increase in food availability but little significant change in nutrient intake.

6. Because Africare chose a strategy that was based on the Niger experience and that was being discussed as a probable new policy during project formulation, the Burkinabe Government and NGOs are likely to ensure that the system is maintained. Plans have been made for postproject maintenance of training courses, both in-service and preservice, for village health agents and midwives. Discussions are being held about decentralizing supervision and training to the health posts to ensure more constant contact. Village pharmacies are already self-financing, Burkinabe supervisors are already posted and paid by the Government and except for the ambulance, recurrent costs have essentially already been assumed.

7. The system is already being replicated or reinforced by the French and German volunteers in Seguenega through their training of village health agents and midwives; it is being established nationwide under the Government national plan. Although Africare was not the first NGO to work in Burkina Faso, the broad-based, multilevel institution-building effort aimed at the whole primary health care system in one specific area has provided an excellent case study on which the Government and others can base future actions.

2.2 Dori Integrated Rural Development Project

2.2.1 Description of Health Component

The overall goal of DIRD is to "improve the quality of life for people in selected communities of the Sahel Region." Health concerns had been expressed by the people of the area in preproject visits, so improvements in health status are one of several means by which this goal is to be achieved. An ambitious listing of goals for improved health is included in early project documentation: the project would work toward a 20-percent reduction in infant mortality; a 10-percent reduction in malnutrition; a 75-percent improvement in medical consultations; a 15-percent per capita caloric intake increase; and a 15-percent increase in per capita protein intake. A study was to be performed early in the project that would provide baseline information by which to measure progress.

The overall purpose of the project is to create a community based integrated rural development program in initially four villages in the Sahel region and collaborate with interested Burkinabe entities. This approach has been used successfully by Save the Children Federation/Community Development Foundation (SCF/CDF) around the world. Because it is predicated on helping communities identify and solve their own problems, quantified objectives are usually not considered predictable nor realistic to set. For the initial 2 years of the project -- a time covered on AID funding -- the project hoped to establish four community health centers and four paramedical teams, or one in each of the

pilot villages. All of the early villages were within 20 kilometers of the regional headquarters of Dori. Choice of later villages (in 1979-1980) appears to have been made on an ad hoc basis with little consideration of areal or spatial development concerns.

Beneficiaries were to be the Fulani and Rimaibe people of the four villages, a total population of approximately 3,000. Some related community-based development activities, including provision of a village well and introduction of vegetable gardening cooperatives, were also linked to improved health and nutritional status. Because the SCF/CDF program began with a small operational program grant from AID and was to be continued through the SCF/CDF sponsorship arrangements, no specific life-of-project budget was established for this or any other component The team was advised that SCF/CDF usually makes a commitment of 20-25 years when they establish a program; the following analysis, then, looks at the very beginnings of this endeavor.

2.2.2 Findings and Analysis of Impact

The project has made very little improvement of either access to services or actual health status in the rural communities in which it works. It has, however, upgraded facilities and services in the regional headquarters of Dori, which may have indirect benefits for the communities. A brief discussion of the quality and quantity of achievements follows.

Quantitative Measures of Outputs Related to Targets. As stated earlier, one of the initially targeted villages, Bafele, decided it did not want to be involved in the project, so only three were added, for a total of eight. The following peripheral activities have been undertaken to date:

-- Two teams of paraprofessionals are working in the villages of Njonga and Gangaol, each operating a small village pharmacy and providing health education, particularly to women.

-- One other team in Selbo is just beginning to function. A new village health agent has just finished training and has started operating a pharmacy from his home; the village's experience with a previous agent had resulted in loss of their revolving fund. The midwife is still in training. New trainees for village health agents in Mamasiol and Sambonal also recently returned to their villages to begin work.

-- A woman from Gomo has been selected for midwifery training by the villagers. The village health agent in Gomo, who was trained in 1982, only worked 1 year and then left the country for remunerative employment. He has recently returned to Gomo but has not resumed work pending a dispute over who is to pay for repairs on his

project-issued bicycle.

-- A maternity wing has been added to the Government health post in Falangoutou, a departmental headquarters near Gomo.

-- The hospital at Dori, the region headquarters, has benefited from physical upgrading of main facilities of its Nutrition Recuperation Center for malnourished children.

The project is now working with a total population of approximately 7,000 in eight rural villages, as well as selected groups in the larger town of Dori. Only one of the two operating village pharmacies was visited; the agent had recorded (on a pictorial record sheet) 38 visits for the month of May, which he stated was about average in his village of over 1,000 persons. The midwife in the village said she delivers all babies (15-20 per year). She said she usually has to send at least five women each year to the Dori Hospital, 7 kilometers away, because of complications. She also has about 15 women to her compound each Tuesday to discuss health topics and provides advice to pregnant women on diet and general well being. It was not possible to get any quantitative information from other agents or midwives, because they were too new, or, in the case of the Gomo agent, had ceased working.

It is risky to generalize on achievement given the small sample (three village health agents, one midwife) and the small project area. It appears that the functioning health agents are providing basic first aid in their villages and that the midwife is practicing sound skills in preventive and promotive health care. No other village health agents or trained midwives are practicing in the immediate Dori area, however, so a small quantitative gain has been made.

Quality and Appropriateness of Outputs. Again, given the small sample in the project, it is dangerous to generalize. Certainly the village health agents and midwife interviewed were well trained and appeared qualified for the work they do. They serve on a volunteer basis, which implies cost-effectiveness of the minimal financial inputs provided by the project. All medicines are currently provided by SCF/CDF. Following national policy and practice, supplies are free for the midwives and at cost for the pharmacies.

Choosing people to fill these positions seems to have been difficult for the villagers. Unlike the Mossi plateau and most other areas of Burkina Faso, the Fulani and Rimaibe people of the Sahel do not have a tradition of village birth attendants to guide them. When asked, one group of women responded that they had chosen the candidate because she is "patient, kind, and wise." A second midwife is a widow who is also president of the sewing group and clearly a major figure in the village social life. Other villages stated they simply "haven't been able to pick a candidate yet." Other NGOs in the region confirmed that

this choice, given the lack of any tradition on which to base it, appears to be difficult for many villagers.

The village health agents, all men, were a mixed group. One agent visited was an old man who kept his records with pictographs. The newly trained agent was also an elder, part of the Village Central Committee and clearly respected. He had basic literacy in Arabic and was able to write the names of patients. The third (who had ceased working) was a younger man who clearly hoped for more out of the position than social status. Although some lessons could be gained from experience elsewhere to help these villagers choose good candidates, it is conceded that in groups like the Fulani and Rimaibe with little cooperative traditions, this is a difficult task.

A point may perhaps also be made about the appropriateness of the assistance to the Dori Hospital and Nutrition Recuperation Center. Neither particularly fits within the rubric of the community-based development approach for rural villages, yet both are useful in the Sahel region. Although it could be argued that the management efforts and funding -- primarily for construction of out-buildings -- might have been more appropriately used for the villages, given the slow rate of acceptance of this community-based approach and community health workers in the communities, the hospital funding may be a good choice. SCF/CDF management is now discussing placing the village pharmacy supply line under Health Department management -- the construction of the extra hospital buildings will certainly aid in the negotiations. The Nutrition Recuperation Center also serves as a training area for village midwives and an improved center for referral of serious cases. In sum, although there are no concrete long-term plans or budgets to prove it, the project appears to be moving toward a spatially integrated, village-based primary health care system, within Burkinabe Government structures.

2.2.3 Overall Impact and Outlook for Continuation of Activities

Comments have been made previously about the paucity of data in Burkina Faso and the short time frame in which to measure impact; analysis of this project is no exception. Baseline surveys were conducted in Dori area in 1977 and 1979 by SCF. Neither survey was based on a statistically valid sample; questionaires were not pretested, and data were not analyzed until late 1979 because a program associate appears to have taken the data with her when she left the country. The responses on health and nutrition in surveys, although interesting, are inconsistent and at times confusing.

Given the extremely small scale of activities at this time, the team concluded that the health and nutrition components appear to have had virtually no impact to date, except in the two villages with operational pharmacies where people do not have to go as far to get bandages, aspirin, and antimalarials. No

comments can be made on the issues of replicability or recurrent costs. Another NGO is assisting in the supervision of approximately 35 village health agents in the Gorom Gorom area north of Dori and states that after 8 years, the teams seem to be self-sustaining. If the Dori SCF/CDF communities can resolve the problems associated with choice of candidates and a supply system that is not wholly dependent on SCF/CDF is set up for pharmaceuticals, the Dori area may realize similar success.

3. CONCLUSIONS

A village-based primary health care system has been established in Seguenega Department. A few village agents are operational in Dori. Given the differences in funding levels and development approaches of Africare and SCF, it is difficult to draw any general conclusions. It appears, however, that because Africare works at multiple levels of the health system -- village, subdepartmental, departmental, and regional -- it has been able to ensure continuity and impact over time. The SCF/CDF project worked initially only at the village level, on a scale that does not suggest enough "critical mass" to be sustained. Recent collaboration with the Department of Health in Dori and assistance to other levels of the system (i.e., the health post in Falangountou) suggest a merging of interests that should help the situation.

There is no evidence of a baseline survey from Seguenega, and the baseline surveys in Dori do not provide any information against which to measure impact. Valid and useful baseline surveys are expensive and management intensive. Voluntary agencies with uncertain or low levels of funding or management expertise might consider the establishment of proxy indicators for monitoring impact over time. In hindsight, a baseline survey that would have met the needs of all components of these projects would have been impossible, given the resources available at the time of project inception.

The Seguenega area is ethnically homogeneous, with a traditional of cooperative community activities; this is not true of the Dori area. Choosing a midwife for skills upgrading was predicated on tradition in Seguenega; in Dori, it has become a new activity for villagers. The choice of a village health agent in Seguenega appears to have been made on the basis of French literacy so that required records could be kept; in Dori, the agents need not be literate, only respected members of the community. Written accountability (to the Government or donor) appears to dictate choice in Seguenega, whereas in Dori it is the presumption of social accountability. The trade-offs inherent in such choices, and the selection of other criteria, might be a subject for collaboration between NGOs and the Government. For example, concern over maintenance of proper accounts may provide a useful learning experience for a village committee but should not be interpreted as an achievement in health care; poorer accounts kept by a respected member of the community who

engages in counseling and outreach may have far more impact in the long run.

APPENDIX E

CROP PRODUCTION: VEGETABLE GARDENING AND LOWLAND RICE

1. OVERVIEW

Agricultural production is concentrated on millet and sorghum, which together with some corn, rice, fonio, peanuts, and beans are grown only during the rainy season from June to September. Traditionally, the November to April dry season is a period of little productive agricultural activity. Few nonfarm income-earning opportunities exist, encouraging seasonal and longer term emigration (particularly of young men to the Ivory Coast). Emigration appears to be increasing; an ORSTOM study revealed that 11 percent of the male population was absent from the Yatenga Organization for Regional Development (ORD) in 1961, and 24 percent was absent in 1973. Rural population density has been steadily increasing, to 88 persons per square kilometer in 1984. Of the 151,900 hectares in the Seguenega Sector, only about 66,826 hectares (44 percent) are believed to be suitable for cultivation. Thus, the increasing population has put added concentrate even more on growing millet and sorghum over cash crops to try to satisfy their own consumption requirements.

The average farm is about 5 hectares, supporting 8.5 persons (including children and other dependents). The residential unit (zaka) averages 10.7 persons in the Yatenga ORD, because there may be more than one farm per zaka.

Total per capita cash income on the Mossi Plateau (including migrant remittances) was estimated at FCFA 4,280 in 1972-1973 -- about $17 at that time. Including home-produced goods, total per capita farm income was between FCFA 6,000 and 8,000 ($24-$32) in 1972-1973. More recent information (1978) places per capita rural income at about FCFA 16,600 (about $47 at that time) for the Yatenga ORD. Remittances from family members working in other countries may total as much as 25 percent of total cash income. However, these remittances are used primarily to purchase consumer goods and pay taxes, with as little as 5 percent being reinvested in crop and livestock production. This indicates the absence of profitable agricultural enterprises, from the point of view of the small farmer.

The Seguenega Sector averaged 524 millimeters (mm) of rain between 1980/1981 and 1982/1983, distributed within the narrow June-September rainy season. This is well below the long-term average rainfall in the area, which was about 700 mm per year between 1945 and 1974 and 625 mm per year from 1965 to 1974. There was an average of only 36 rainy days per season between

1980 and 1982, indicating that heavy storms followed by dry periods were the rule. Furthermore, there is great annual and intraseasonal variability of rainfall in this part of West Africa.

The farming systems employed are labor intensive, with only about 4.4 percent of farmers in the Yatenga ORD and the whole country using animal traction equipment. A minority of the population uses chemical fertilizers, fungicides, or improved seeds. During the rainy season, labor is generally believed to be the first constraint to increasing crop production, but that is far from the case during the long dry season. A 1974 study of the Mossi Plateau showed that only 0.5 hours per person per day were spent on agricultural activities between December and May. Nonagricultural activities during this period tend to produce little or no income (e.g., house replastering, roofbuilding, processing foods, or making craft items).

Farmers in the Yatenga ORD have been much less dependent on crop sales for cash income than farmers of the Mossi Plateau, but they have depended more on livestock sales. In 1972-1973 only 15 percent of direct cash income (as a percentage of total income from home production) came from crop sales in Yatenga, whereas 63 percent came from livestock sales. In Yatenga, less than 7 percent of income from home production came from vegetable sales, whereas these sales accounted for over 15 percent of income in the whole Mossi Plateau.

Agricultural production in the Dori area differs in several significant ways from production in the Seguenega area:

-- Average annual rainfall is less than 500 mm and has been lower in recent years, averaging only 411 mm between 1977 and 1981.

-- Crop production is very heavily concentrated on millet, because it is virtually the only food crop capable of growing with so little rainfall.

-- The rural population focuses even more intensively on livestock production. The seminomadic Fulani (Peul) and their former slaves, the Rimaibe, form the majority of the population and have a long tradition of livestock rearing. Other groups living in the area -- Tuaregs, Djermas (Sonhrai), and Mossi -- also raise livestock, the latter two more in deference to the harsh environment than through any cultural heritage.

-- The population density is much lower; that of the Sahel ORD as a whole is only about 10 persons per square kilometer.

Even though the Sahel ORD has a relatively favorable land-to-man ratio (2.8 hectares per rural inhabitant versus 0.9 hectares in Yatenga), the lack of rainfall severely limits rainfed crop production. Rainfall variability is extreme, with less than half of the past 10 years considered "normal" (i.e.,

acceptable for the area as a whole). The 1983/1984 harvest was particularly affected by drought in the Sahel, as elsewhere in Burkina Faso. The Sahel ORD is chronically deficient in cereal production, averaging just 109 kilograms (kg) per inhabitant recently. This is well below the 180-200 kg per person quantity normally assumed necessary for rudimentary nutrition.

In sum, dryland crop production is an extremely risky enterprise in the Sahel. The sale of livestock and livestock products probably accounts for the Sahel ORD's per capita rural income of FCFA 35,500 (or $101 in 1978) -- the highest in Burkina Faso at that time. Alternative income-generating opportunities, however, are very limited.

2. ACTIVITIES IN THE COMPONENT

2.1 Vegetable Gardening

2.1.1 Preproject Status

By most accounts, vegetable production was little developed in either area in the 1970s. Women traditionally grow very small plots of okra, roseille, hot peppers, and other ingredients for their sauces. Tomatoes and onions were also probably grown in very limited quantities in some villages, but European vegetables such as Irish potatoes, green beans, cabbage, lettuce, and carrots were virtually unknown outside of the largest towns.

The Union Voltaique des Cooperatives Maraicheres (UVOCAM) was created in the late 1960s as the national organization to promote vegetable gardening, including production for export. UVOCAM did not have the resources to carry out its marketing functions and has become more specialized, developing the green bean export market. In the interim, regional cooperatives have been established to promote vegetable production more generally.

The regional cooperative in the Yatenga ORD is the Yatenga Regional Marketing Cooperative (URCOMAYA). It is based in Ouahigouya and is supported by OXFAM, a British-based nongovernmental voluntary organization. URCOMAYA furnishes seeds (including potato seeds) to vegetable growers and also supplied fertilizers up to to the 1981/1982 season. URCOMAYA has been unable independently to provide inputs, credit, and timely marketing services to its clients outside the Ouahigouya area. The fact that is operates a cold storage facility, however, has made it an invaluable source for those farmers able to transport their vegetables to Ouahigouya. The marketing of Irish potatoes has come to dominate UROCOMAYA's activities; overall, it is a financially limited and subsidized organization.

Prior to the Seguenega Integrated Rural Development Project (SIRD) and Dori Integrated Rural Development Project (DIRD), the

only credit available to small farmers was through private businessmen. These commercants were largely able to set their own terms, including interest rates that could reach 50-100 percent. Although the National Agricultural Credit Union (CNCA) was established in 1979 to provide a national credit program, it lacked the resources to carry out its mandate.

In the Seguenega area, Africare, Inc.'s original involvement was the development of a small pilot integrated rural development project between 1975-1977. A pilot vegetable-gardening component was included in this project. Only Ramsa (which already had a successful tomato-growing operation) and Goutre villages took part in this pilot gardening activity, and much of the work involved organizing village groups (GVs) for collective action and forging relationships with the ORD and URCOMAYA.

In the Dori area, the Save the Children Federation-USA (SCF) followed its Community-Based Integrated Rural Development approach, by which villagers organize themselves to identify their problems and then plan and implement programs to overcome these problems. Gardening was a logical choice for an incomegenerating activity with which villagers had at least some rudimentary experience. The gardening projects within DIRD were designed to provide production inputs on credit, introduce new crops, improve gardening techniques, and improve water resources where necessary.

2.1.2 Description of Activities

Objectives

The general objective of the vegetable-gardening components was to foster "improved vegetable production capability." The production of vegetables was intended to provide cash income and nutritional benefits to residents as the various vegetables became accepted in rural diets.

The rationale for the program was founded on the observation that farmers had little income-earning potential in agriculture and were particularly underemployed during the dry season. It was also believed that vegetable gardening might even become an attractive investment for migrant savings. The approach was to promote gardening activities that generate income while minimizing the competition for overtaxed resources and increasing the employment of the most abundant resources (i.e., manual labor), thereby improving the limited liquidity of farmers.

Subcomponents and Their Implementation

In SIRD, the three specific subcomponents of vegetable gardening are village market gardens, school gardens, and a training activity for both farmers and extension agents. Related

project activities included school and village garden well construction, revolving funds for delivery of production inputs on credit, and the general training of the Village Development Committees (CDVs).

The principal crops grown in both the village and school gardens have been Irish potatoes, green beans, tomatoes, onions, cabbage, carrots, and lettuce. By far the most important of these has been potatoes. Tobacco is being cultivated increasingly (particularly in Ramsa) as a second crop during the dry season. Corn is usually the most important crop grown in the gardens during the rainy season, sometimes in conjunction with peanuts and a few vegetables.

All village gardens are initiated and overseen by a GV specifically set up for that purpose by the villagers, with the advice of ORD extension agents or an SIRD extension agent. Usually such a GV is a subsection of a single CDV in any given village. The jobs of the GV are to find suitable land and divide it into parcels among participating members; to work collectively to dig the well(s) (under the direction of the well-digging crew) and build the fences; and to contract and reimburse credit for production inputs on behalf of 45 members.

The original intent was for each GV to become a member of the Yatenga gardening cooperative, URCOMAYA. In fact, this has not occurred, as URCOMAYA was unable to fulfill its credit and marketing duties directly. The problem has been resolved to the extent that SIRD itself supplies potato seed on credit and collects and markets potatoes on behalf of URCOMAYA. The project also supplies vegetable seeds, hand tools, watering cans, and fertilizer on short-term (not over 1 year) credit to gardening GVs, fencing and tools on medium-term credit (3-5 years), and provides long-term credit (20 years) on wells. However, longterm credit has been virtually abandoned because villagers are generally able to pay off even well construction costs within 5 years. A 10-percent interest rate was attached to all loans originally administered through the project, but this was later adjusted to 8-percent in accordance with new Government (CNCA) regulations. A member of each GV is trained to some extent to manage the credit fund but is given assistance by ORD and project staff.

Only potatoes are currently being marketed through organized channels. The project purchases potato seed from URCOMAYA each year, based on the projected requirements submitted in advance by each GV. It distributes these seeds on credit to farmers and then recovers the credit when purchasing farmers' potatoes in March. Farmers are paid when the project trucks collect the potatoes. URCOMAYA had previously withheld payment to farmers until they themselves had sold the crop -- often a period of several months. Farmers also consume a portion of their potato crop and sell some of the crop locally.

There is still no organized market for the other vegetables produced. Farmers generally consume part of the crop and sell

the rest in the village or in nearby villages. Because most of these vegetables are highly perishable, some waste occurs and farmers are at times forced to accept low prices. This is because the demand for many vegetables is only just beginning to expand in rural areas as tastes are acquired for nontraditional foods, and because most vegetables are harvested during a relatively short period of time (January-March). Thus there is localized excess supply and apparently little movement of vegetables to nonproducing villages in the area or to larger population centers.

ORD extension agents are responsible for the grass-roots help and advice given to farmers who grow vegetables and all other crops. They have been supported in the SIRD project area by 24 project-funded extension agents and two supervisors. Two SIRD agents (one male and one female) were originally stationed at each of the 12 Type I villages selected for intensive project activity. There is one ORD-assigned coordinator of the vegetable-gardening and rice-production activities, who is based in Seguenega and coordinates programs and training sessions with the heads of the appropriate ORD offices and with external agencies. He directly supervises the work of extension agents in their extension of vegetable production techniques and their implementation of vegetable credit and marketing programs. He also holds a yearly training session for primary school teachers taking part in the school gardens program and oversees the program itself.

For DIRD, vegetable gardening has been allowed to develop in particular villages independently and on an ad hoc basis. Thus, no overall development strategy has existed, and separate projects have been developing for 1- to 2-year blocks of time as DIRD has evolved. As in SIRD, villagers form a vegetable gardening subcommittee to the already existing DIRD-organized central committee. All interested households are allowed to join. Working with SCF/CDF staff, the villagers determine their requirements for fencing, tools, and seeds, which are then purchased and distributed by SCF/CDF after drawing up a loan agreement. The agreement specifies the amount and time of reimbursement for each type of input ordered. The central committees are in charge of collecting reimbursements and interest from borrowers. In theory, materials for wells (to which villagers contribute their labor) are reimbursed within 5 years, and all other tools and inputs are reimbursed in a single season (at 8-percent interest). The principal (not including transport costs incurred by SCF/CDF) is repaid to DIRD at the end of the season, while the interest earnings are held in a fund (caisse) by the village central committee. This fund is to be used for purchasing incidental materials for gardening and for continuing the gardening operation after the departure of SCF/CDF. One individual in each committee is responsible for monitoring loans and reimbursements for one type of material (e.g., one person is responsible for seeds, one for watering cans), all calculations being done from memory.

DIRD began its vegetable gardening work in two villages during the 1978/1979 season. Four other villages have since

started vegetable gardens.

Staffing problems apparently slowed progress during the early years of DIRD and have continued to plague the project. Because of staff turnover, 1980-1983 was cited as a retrogressive period for the project's agriculture and livestock programs.

Beneficiaries. The project goals are to improve the quality of life of all of the residents in the sectors. In Seguenega, eight villages currently have village gardens, which are spread out geographically, though somewhat more concentrated in the north. Village populations range from a low of 677 residents to a high of 4,917 in Seguenega village. The number of direct beneficiaries of the village vegetable gardens program may be very roughly estimated at 5,000, including gardeners responsible for parcels and the members of their households.

The number of direct beneficiaries of the school gardens program may be estimated at 3,000, including all students at the 10 schools, with some allowance for turnover. Because all production from school gardens has either gone to feed the students or has been sold to finance the garden, only the school children are included.

Indirect beneficiaries of the village gardens may be assumed to be the total populations of the participating villages, or about 15,000 persons. The 50 extension agents trained under the program are also direct beneficiaries, and the entire ORD staff are indirect beneficiaries in the most general sense.

In Dori, approximately 152 gardeners (heads of households totaling about 1,140 persons) have participated in the DIRD vegetable-gardening program. Work has been conducted in six villages. The heads of households are generally responsible for organizing the work and managing the funds for the household's garden plot, but all household members are direct beneficiaries because earnings are used to cover necessary expenses for the entire household. Indirect beneficiaries include those villagers now able to purchase vegetables in the producing villages, particularly the residents of Dori Town, where most produce is marketed.

Cost. The SIRD Project Paper anticipated direct costs totaling $371,700 for the 5-year duration of the vegetable gardening component. By far the greatest part of the budget was the $173,200 set aside to operate the revolving credit funds.

No reliable data are available on actual direct expenditures by component over the 5-year (September 1978 to September 1983) life of the project. However, it has been estimated that about $828,000, or about 14 percent, remained of the original $5.9 million grant as of the end of the 5-year period. Assuming proportional expenditure rates across components, we may roughly estimate that $319,550 was actually spent on all vegetable gardening activities over the project's 5-year lifetime. This includes Government expenses (mainly salaries) but does not

include any valuation of labor contributed by villagers. We may thus calculate a very rough estimate of direct cost per beneficiary of $5.56. The latter includes the entire populations of villages with village gardens (about 15,000) and the 3,000 school gardeners.

The revolving funds continue to function, and so the estimated costs given above are partially retrieved through repayments. Contributions of resources to the vegetable-gardening activities by external agencies (notably, the Peace Corps, the six other foreign government or private donor organizations, and OXFAM) are not included in the above cost calculations.

No exact cost figures have been kept by DIRD for each component over its years of operation. Based on available loan records and current rates of spending in each village, we may, however, very crudely estimate total project expenditures to date on vegetable gardening at $15,000. The value of village labor contributions is not included in this estimate, only direct cash expenses incurred by the project. Thus, roughly $13.16 has been spent per direct beneficiary since the outset of the project, with some beneficiaries having participated for a much longer time than others.

2.1.3 Findings and Analysis of Impact

Quantitative Measures of Output Related to Targets

Output targets and actual achievements are shown in Tables A-1 and A-2 in Appendix A. Although the SIRD project has largely met or surpassed its output targets, there have been failed attempts in some villages, nearly always related to insufficient water in some wells, to carry out vegetable gardening. The project finds it difficult to demand repayment of credit under these circumstances. Some villages that have functioning gardens have lacked water at various times because their wells are used for other purposes. In the village milieu it is difficult or impossible to limit the users of wells.

The quality of the training received by extension agents and farmers is uncertain. Training of farmers has been through the participation groups. Most training has been 1 day of training in farmers' gardens, although some farmers have been trained in Seguenega over the course of a week.

DIRD documents do not state any comprehensive quantified objectives for participation, surface area, or increase in production. In fact, the number of participating households is modest in relation to the entire population and resources of the Sahel ORD. However, among direct participants, considerable success has been achieved in producing cash income from vegetable sales and, to a lesser extent, introducing new crops into the diet.

Impact Issues

Farmers and project officers alike point to the vegetable gardens component as one of the more successful components of the project. Overall, it has fulfilled its intended purpose of allowing some farmers to earn cash income and to be productively employed during the dry season. Villagers are consuming vegetables that were not available prior to the project. Given the short time period that the project has been in operation and the limited number of participating villages, it would be unrealistic to expect a strong multiplier effect throughout the sector in vegetable production. Although the signs for the future are positive, it is also too early to expect important changes in the pattern of investment of migrant earnings or in the rate of emigration itself.

Evidence of Increased Production and Sales. No data are available on vegetable production and sales in Seguenega prior to SIRD. URCOMAYA officials indicated, however, that they purchased little if any vegetables from the Seguenega Sector. No other organized market existed and so it may be assumed that total vegetable production was minimal and varieties limited to such crops as okra, roseille, hot peppers, and, to a lesser extent, onions and tomatoes. These vegetables were grown on very small plots, often by women, and usually during the rainy season. It is clear that vegetable production in Seguenega has increased significantly since preproject days. The most striking example is potatoes. Of the estimated potato crop of 121,690 kilograms (kg), 42,541 kg were sold to URCOMAYA. Comparable data for DIRD do not exist.

Evidence of Profitability. Using the production data in Table E-1 with 1983-1984 prices, we may calculate roughly the expected gain from potato production per gardener. Assuming a total of 500 gardeners, the following has been calculated:

Value of Production: 243.38 kg/gardener x FCFA 80/kg producer price = FCFA 19,470 for each gardener

minus

Cost of Seed: 17.82 kg seed/gardener x FCFA 200/kg = FCFA 3,564

equals

Expected Gain: = FCFA 15,906 for each gardener

Some gardeners have purchased hand tools and watering cans on credit, but these may be used over several years. Other purchased production inputs are minimal. Many gardeners use only manure. However, the gains of nearly FCFA 16,000 per gardener would be little diminished by the cost of fertilizer because the average plot size is only around 500 square meters.

Table E-1. Vegetable Gardening: Location, Areas, Production in SIRD During 1982 Growing Season

To see Table E-1, please order a paper copy of Document Number PN-AAL-080

In terms of actual sales to URCOMOYA in the villages of Ramsa, Mogom, and Goubre, assuming a total of 220 gardeners, the following sales have been calculated:

193.37 kg/gardener x FCFA 80/kg = FCFA 15,469/gardener

These figures (for potatoes alone) are very significant in relation to average annual income in the area, particularly given that crop sales of any kind in the Yatenga ORD have traditionally been very low (about FCFA 1,350/household in 1972/1973).

Indirect evidence on the profitability of vegetable production is seen in the ability of gardeners to repay their loans on time. Africare reports that the vegetable-gardening component has enjoyed a 96-percent credit repayment rate. Although this undoubtedly does not include gardens that have failed, it does indicate the success of vegetable production in generating income under "normal" circumstances (i.e., when sufficient water is available). Farmers are now regularly repaying their loans for wells in 5 years, rather than the 20 years originally thought to be necessary. The gardeners at Goubre are in the process of successfully financing an FCFA 1-million ($2,500) motorized pump that brings water from the nearby lowlands marsh to their garden. This is also on a 5-year reimbursement schedule.

As in Seguenega, indirect evidence in Dori indicates that vegetable gardening is a profitable enterprise. Gardeners in Dori Town stated that they could produce, on average, 15-20 kg of potatoes for each kg of potato seed planted. Even though potato seed was much more expensive in Dori than in Seguenega in 1983/1984 (FCFA 480/kg versus FCFA 100/kg), potato growing remained profitable. Seeds are the main production input requiring cash. Chemical fertilizers are very rarely used because livestock manure is widely available. Hired labor is not required because gardening is undertaken during the slack dry season. Thus, each kilogram of potato seed planted was capable of netting the farmer a profit of FCFA 1,270 (17.5 kg times FCFA 100/kg minus FCFA 480 for seed), excluding any expenses for tools or reimbursement for wells.

Sizes of garden plots vary widely from one location to the next, and thus current potential per gardener also varies widely. In the DIRD area gardeners reported potential net gains of FCFA 15,000-45,000 in a good year. DIRD project staff indicate that credit repayment in the vegetable-gardening component has been high -- another sign that farmers find gardening profitable. The coordinator of agricultural programs stated that he had been reimbursed for 100 percent of loans made to gardeners between

1980 and 1983. Food shortages in 1984, however, made loan reimbursements more difficult, because crops were either consumed (especially potatoes) or sold to earn cash to purchase cereals.

Family Income. At most garden sites, credit is contracted through the head of the extended family, whereas the work is shared by members of the household. Some household heads allocate a large portion of their plots to potatoes and then, if enough space remains, allow other household members to cultivate their own beds of other vegetables. Part of the production from the combined household plot is used for household consumption and part is sold. Earnings from crop sales are used primarily to buy food (when necessary), pay taxes, and buy clothes for the family. Income earned by individuals is retained by them and used as needed. All members of the household thus appear to benefit from this arrangement.

Groups. In general, the group appears to be an effective mechanism for stimulating the growth of vegetable gardening. It is much better situated to acquire land, provide labor for construction of wells and fences; contract, manage, and reimburse credit; and market potatoes than is the individual gardener. Membership in a group is totally voluntary and not financially demanding for the individual. The possibility of social pressure certainly does not hurt credit reimbursement rates.

The groups are of course dependent on project and ORD staff in certain areas. These areas include procurement of seed, marketing of output, assistance from well-drilling teams, availability of credit at reasonable rates, and assistance in managing activities -- particularly the fund -- all areas in which SIRD has made its most important contributions. Given the current availability of services to small farmers in rural Burkina Faso, it must be assumed that the group will need continued support in the above areas for the foreseeable future.

Marketing. Marketing is probably the most serious roadblock to an eventual widespread boom in vegetable gardening. In Seguenega the situation has been partly ameliorated for potatoes with the arrangement between the project and URCOMAYA. However, several problems remain. For several years the Government of Burkina Faso has been encouraging vegetable production in all parts of the country. Farmers have responded and production has been increasing steadily. There is no overall plan, however, and production has been allocated according to perceived demand, about which very little is known. The export market will only be developed very slowly and will presumably not affect many producers. Thus most production will continue to be marketed within the country. At present, the urban population is the primary consumer of vegetables, and rural communities are only beginning to acquire tastes for certain vegetables.

In Seguenega, more specific and immediate problems are as follows:

-- A limited marketing choice exists for potatoes. Farmers

generally prefer to sell most of their crop to URCOMAYA, even though prices have been better on the open market recently. This is mainly because the URCOMAYA market is timely and guaranteed, and farmers may repay their credit at season's end.

-- No organized market exists for vegetables other than potatoes.

-- Storage is a problem for all crops because no refrigeration facilities exist within the sector. This severly limits a farmer's flexibility in marketing his vegetables.

-- Although road improvements within the sector have helped move goods and services therein, gardeners in Seguenega will probably not be able to tap the Ouagadougou market directly until an improved road links the Sector to the main Ouagadougou-Ouahigouya road. There is no evidence of increased private commercial activity in vegetable marketing in the area, but presumably this could occur if this key segment of road existed.

In Dori, no organized market exists for vegetables of any kind. Growers sell their produce where they are able, at prices determined by the local supply and demand equilibrium. The military regiment stationed in Dori and schools there are important purchasers of vegetables. The main marketing problems are the same as in Seguenega. The Sahel ORD inadvertently worsened the situation this year by marketing a large quantity of potatoes from Djibo (the province to the west) in Dori. This underscores the need for a unified strategy for production and marketing of vegetables throughout Burkina Faso. It is questionable how much demand for vegetables is likely to increase in Dori Town. It is likely that an increasing proportion of the production from village gardens will have to be consumed within the villages themselves. Slowly changing food tastes in such rural areas may thus restrain further growth of production for at least some vegetables.

Nutrition. Farmers invariably stated that they consumed part of their crop within the household and sold part. Potatoes are quickly making their way into diets, and green beans, tomatoes, lettuce, carrots, cabbage, and onions are totally consumed within villages near producing gardens. Presumably, then, this increased vegetable production is having positive effects on nutrition within these villages. Students have also benefited nutritionally, because much of the output is consumed in school lunches. If we take the 1982 production and sales figures for potatoes in Seguenega as representative, only about 35 percent of the total potato production is marketed through URCOMAYA. The remainder is either eaten by the gardener's family or sold and eaten locally. In Dori, the proportion of vegetable production consumed within the producing village seems to vary directly with distance to Dori Town. Gardeners in villages near Dori Town consume only a small portion of their vegetable production and

market the rest in Dori themselves. Villagers who live much further from Dori Town stated that they generally consume about half of their vegetable production, probably because of the difficulty in finding markets. Thus, the more remote villages are more likely to benefit nutritionally, at least in the short term, than are villages close to Dori Town.

Water. Availability of water in sufficient quantity to grow vegetables through the dry season has been an important constraint on production. Project personnel, in selecting well sites, have attempted to reconcile village location requirements with the best information available on subsurface water resources. However, the results have been mixed and the ultimate success or failure of a well is always in doubt. Shifting water tables and continued drought in recent years have exacerbated the situation. The availability of water will ultimately determine the villages in which gardening stands any chance of success.

Integration of Activities. The benefits derived from an integrated project such as SIRD are clearly visible in the vegetable-gardening component. The advantages of directly involving farmers in the decision-making process through groups have been described above. From the viewpoint of project management, it has been very advantageous to the head of the gardening component that he has had access to and practical help from members of the SIRD and ORD planning, credit, and training sections. He would have had difficulty maintaining his services to extension agents and farmers had he been required to manage all aspects of the program. The improvement of roads is already to some extent affecting input supply, marketing (mainly for potatoes), and extension agent-farmer contact. The improvement of the Ouagadougou connector road could further assist input supply and marketing.

Integration of components in DIRD has been much less systematic, depending on villagers' willingness to form groups and organize for particular activities. Thus, some of the main integrating activities, such as villagers' construction of roads to larger markets and literacy programs, have not been undertaken.

2.1.3 Outlook for Continuation of Activities

Coverage of Recurrent Costs

In Seguenega, the vegetable-gardening component was set up to operate entirely on the basis of a revolving credit fund. A total of $173,200 was allocated for the revolving fund alone -- by far the largest credit activity of the SIRD.

A recent Africare report estimates that the vegetable gardening component would incur $10,000 of annual recurrent costs to continue their work beyond the close of the project. This sum is for well-deepening operations only. The costs associated with

the project's credit adviser (estimated at $11,000 annually) have not been included, however, and it is doubtful that the Government would cover them.

Several Government-paid staff members contribute directly to the gardening program. These include a credit agent, the ORD Production Chief and his assistant (who has been assigned fulltime to Seguenega), the head of the project's gardening and rice production components, and the wells crew. There are signs to suggest that the ORD is sufficiently pleased with the component to continue paying the salaries of these key personnel (and allowing them to continue with current activities); however, there can be no guarantees with regard to Government policy.

Other hidden costs may also exist. The possible subsidization of fuel costs and seed costs in the potato program are examples. It may well be, however, that any such costs are covered by interest payments made by farmers to the project.

Replicability and Sustainability

Replication of gardening programs in other villages is feasible to the extent that water availability and market saturation allow. If growing vegetables continues to be a profitable dry season pursuit, there is every indication that more and more farmers will be interested in participating.

Groups will continue to depend on project or ORD support in the areas of seed procurement, credit, marketing, well construction, and general management consultation. Thus far, at least, there is no evidence to suggest that the revolving fund is being decapitalized. This is testimony to both the effectiveness of the credit system and the profitability of vegetable production itself.

Another positive factor results from Africare's method of integrating itself into the ORD structure and of sharing responsibilities. ORD personnel not paid by the project have played important roles in establishing the gardening component. They thus have an interest in maintaining the component after the departure of Africare. Furthermore, because that responsibility is shared among several branches of the ORD, reducing financial and management pressure on any one branch, it is less likely that the program will be dropped.

Although SCF's community-based integrated rural development methodology is designed to allow villagers greater independence from Government organizations, this independence would in fact leave them rather helpless to continue the DIRD programs should SCF pull out in the near future. It is only recently that some ties are beginning to be made between the DIRD project and the Sahel ORD. In the early years of the project, little cooperation was possible because the ORD was just becoming established.

Progress is being made toward developing the necessary

skills within village committees to manage the vegetable-gardening programs. However, the committees do not currently possess the capabilities necessary to maintain the programs. The lack of a permanent connection to the ORD makes the programs much more vulnerable should the DIRD project be terminated.

Committees need continued support in administering their credit funds. At present, interest charges and repayment schedules are specified for each input each year by SCF/CDF personnel. Even under these prescribed circumstances, it is difficult for villagers to accurately "balance their books" without at least some degree of functional literacy among some of their members, an element of integrated development included in SIRD but not in DIRD.

2.2 Lowland Rice Production

2.2.1 Preproject Status

Rice cultivation in Seguenega and in the Yatenga ORD as a whole is not a major activity for most farmers. It is not feasible at all in the semiarid Sahel. Most rice is grown in low-lying areas (bas-fonds), or lowlands, which collect moisture and include creek beds, swamp, or a ground depression that collects rainfall. Table E-2 gives rice production, surface area harvested, and yields in the Yatenga ORD between 1978/1979 and 1981/1982. Production and surface area for other cereals (mainly millet and sorghum) are also reported for comparison.

Table E-2. Cereals Production, Yatenga ORD
1978/1979-1981/1982

Cereal Crop	1978/79	1979/80	1980/81	1981/82
Rice				
Lowland Production (T)	187	210	16	514
Total Production (T)	276	377	215	732
Lowland Surface (ha)				
Area Harvested	242	363	23	391
Lowland Yields (kg/ha)	773	534	696	1,315
Other Cereals				
Total Production (T)	75,634	66,689	39,094	68,376
Surface Area Harvested (ha)	222,610	199,843	53,275	131,131

Source: Bulletin de Statistiques Agricoles, 1978/1979-1981/1982, Ministry of Rural Development, Burkina Faso, pp. 78-80

These figures raise several points. Most striking is the insignificance of rice production relative to millet and sorghum production; less than 1 percent of the total cereals crop was rice. Clearly, 1980/1981 was a disastrous year because of poor rainfall. Notice that rice production in lowlands decreased even more than did that of other crops in 1980/1981, as farmers harvested only a fraction of the surface area they usually do. Even with the 1980/1981 failure, 59 percent of total rice production during these years came from lowlands. The yields are very low compared with potential yields recorded at research stations, for example. Farmers have not been able to cultivate much of these lowlands because of the sudden, uncontrolled flooding that often occurs during the rainy season. Without some form of water control, growing any kind of crops in lowlands is extremely risky, with the continued threat of either too little or too much water.

Because rice is grown during the rainy season, it competes directly with millet and sorghum for the farmer's limited resources in land, labor, and capital. Labor is in particularly short supply during the periods for planting and weeding millet and sorghum. Given the importance of millet and sorghum crops to the farm household, first priority is usually given to these crops when a resource constraint occurs.

Rice is traditionally viewed in this part of Burkina Faso as the food of the wealthy and by others as a food for special occasions. It is not necessarily preferred in taste to the other cereals. Thus, it has been grown largely as a "cash crop," but only in the loosest sense of the term.

2.2.2 Description of Activities

Objectives

Lowlands rice production was included in SIRD as an incomegenerating activity that could in turn receive some infusion from migrant savings if it were shown to be sufficiently profitable. Like the vegetable-gardening component, the lowlands rice production component was an attempt to take advantage of the underutilized lowlands resources.

Implementation

Lowlands have been improved by the project, allowing some degree of water control in some areas and lengthening of the

growing season to allow a crop of rice to mature. Small water-retention dams and multiple earthen dikes are the main structures built. Before the project began, ORD surveyed about 500 areas of lowlands in the Seguenega Sector. This survey, overlaid by the locations of interested GVs, forms the basis for site selection. ORD chooses the areas to be included and gets approval from the Seguenega Consultative Committee. Up to $100 per hectare of credits for survey and supervision costs, tractor plowing, seed, and tools was allocated in SIRD. The GV contracts credit on behalf of individual members. Often, the GV will have a communal field, and the remaining land (which makes up the bulk of the surface area) is divided into smaller parcels for individual farmers. In at least two locations, the lowlands are sufficiently large to allow GVs from several neighboring villages to share the land.

SIRD generally constructs the water retention devices, with the help of farmers. Maintenance responsibilities are similarly divided, depending on the nature of the job to be done. The project also plows the reconditioned lowlands before the cropping season whenever possible and furnishes improved seed and fertilizer to farmers who are not self-sufficient in seed production.

Beneficiaries. Geographical distribution of participating GVs in the rice production component is of course limited to areas with some potential for development of lowlands. Within the GV, there is no obvious reason to believe that participation is restricted to certain members of the community.

Within the household, labor on the rice plot is shared and the harvest is used for the entire family. What is not consumed is used to pay major expenses such as taxes.

The number of direct beneficiaries may be roughly estimated to be 8,500, including family members of all GV members. This assumes an average plot size of 1,000 square meters.

Costs. SIRD set aside a total of $38,500 for the lowlands rice production component. Using the same rough means described in the gardening section, we may estimate total expenditures during the 5-year life of the project at $33,000. The cost per direct beneficiary is then equal to $3.88. (The contributions by the Peace Corps are included in the calculations, but those of the Rural Development Fund (FDR) are not.)

2.2.3 Findings and Analysis of Impact

Quantitative Measures of Output Related to Targets

The only output target for this component was to develop 100 hectares of lowlands for rice production, with five functioning GVs. According to project reports, this target had been met by the end of the 1983 rainy season. There are now at least 11 villages involved in the program.

When years of below-average rainfall occurred, farmers reverted to planting sorghum in lowlands instead of rice. A project officer indicated that as much as 75 percent of lowlands was currently planted with sorghum.

Impact Issues

The main positive impact of the lowlands rice component was to open up previously uncultivated, good land to crop production, especially important in an area like Seguenega where good land is in short supply. That the main crop grown is sorghum instead of rice may only be considered negative in that sorghum is not considered a cash crop.

In a year of low rainfall a crop planted in lowlands may fail, but it is more likely to succeed than a crop planted on the upland. In a year of good rainfall, lowlands that were previously impossible or very risky to cultivate because of flooding are now available for cultivation.

The overall impact could not be considered great at this stage, however. The risk associated with lowland cultivation has been reduced in a few locations, but much risk remains for farmers.

It is a logical step for a farmer who is primarily concerned with feeding his family to choose a crop that has the best chance of producing some harvest during periods of adverse growing conditions. Sorghum requires less moisture and does better under drought conditions than does rice. It therefore stands a better chance of bearing at least a marginal harvest during a drought year. Farmers also feel that they need to compensate for lost production on upland fields because of drought.

Rice is a marginally important crop to most farmers at present. Until farmers in the area come close to or achieve regular self-sufficiency in food production, lowlands production will continue to consist of sorghum. Farmers do make adjustments to their crop choices based on observations of growing conditions and harvests in recent years. If rainfall becomes more favorable over several years, rice production is likely to increase.

The ORD and SIRD are now responding to this unintended impact by encouraging farmers to grow sorghum in areas where rice has not done well. Until a better seed variety is introduced and somewhat more sophisticated water retention devices can be constructed, project personnel are prepared to "let nature take its course."

Land. Lowlands traditionally belong to historically "royal" Mossi families. The procedure by which undeveloped lowlands are solicited from the owner and eventually divided into parcels is largely left to the GV, under observation of the local extension agent. The system has worked, with one major exception.

No legally binding contract is drawn up with the landowner regarding land-use rights. Some landowners, therefore, have been able to take back the land they originally allow the GV to use. Their desire to do so is clearly based on both the increased value and productivity of the lowlands and their own household requirements for cereals production. The lack of a contract was obviously a serious oversight on the part of project planners, but one which is in the process of being resolved.

Yields and Profitability. The chance that a farmer will realize no production from his rice field in any given year is quite high. However, he would be more likely to gamble on rice if it proved to be high-yielding and profitable in good years. The Project Paper anticipated that the lowlands, after being improved, were capable of yielding 1,000 kilograms/hectare (kg/ha) the first year and 1,500 kg/ha thereafter. However, on the land actually producing a crop in 1983, the average yield estimated by SIRD was only 551 kg/ha. Seed quality and farmers' management practices remain problems that adversely affect yields according to project staff. Rice probably receives no more (and possibly less) labor and chemical fertilizers per hectare than does millet or sorghum, making total production costs similar for the three crops. Assuming similar yields and costs of production for rice and sorghum/millet, the only possibility for higher profits from rice rests in the difference between producer prices. The recent official price differentials (Table E-3) have probably been insufficient incentive to stimulate most farmers to grow rice. At least on the official Government market, the producer price advantage of rice over millet/sorghum has dropped significantly in recent years.

Table E-3. Official Producer Prices
(in FCFA per kilogram)

Cereal	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84
Rice{a}	63	63	63	67	67	73
Millet/ White Sorghum{b}	40	40	45	50	59	65
Difference	23	23	18	17	8	8

{a} Represents average price of first and second quality paddy since 1981/1982.

{b} Represents average price of millet and white sorghum since 1982/1983.

GVs. Like those in the vegetable-gardening component, GVs

participating in the lowlands rice component seem to have been quite effective in performing their responsibilities. In terms of recruitment, land distribution, voluntary labor, and credit /input ordering, they have apparently performed as expected. The poor credit reimbursement rate (estimated at 44 percent in 1982) probably reflects the low return to investments made by farmers more than any weakness in the reimbursement system itself. GVs are, however, dependent on outside assistance for construction of water retention devices, the heavier jobs of maintenance and plowing, improved seed selection and delivery, and management assistance for the credit fund.

Water. Some lowlands are suitable for only very minor improvements (e.g., small dikes) and have limited production potential. Other larger lowlands are better suited to larger scale works (e.g., dams). There is a need for careful survey of lowlands to determine the most likely locations for success of each kind of work. This must be done with a very close examination of recent weather patterns so that rough probability functions on annual crop success or failure may be determined. Only then should particular crops be targeted for particular lowlands.

2.2.4 Outlook for Continuation of Activities

Coverage of Recurrent Costs

Africare has recently estimated that $5,714 would be required annually to continue the lowlands rice production component at its current level. However, rice production has not been sufficiently profitable to allow the component to be financially self-sufficient. Crop failures and the common switch to food crop production in lowlands have resulted in low credit reimbursement rates and a decapitalization of the revolving credit fund for the component.

Replicability and Sustainability

Under present circumstances, there appears to be little incentive for either the Government or individual farmers to expand rice production in improved lowlands. The intended increase in rice production and sales has not been achieved. Until more sophisticated water retention devices make rice cultivation less risky, and until improved seed is regularly available and sufficient price incentives exist for farmers to employ more intensive management practices, little increase in rice production may be expected.

For the improvement of lowlands to continue without regard to crop, additional support to GVs would be needed in the areas of construction and maintenance of water retention devices and management of the credit fund. In particular, the problem of land tenure must be resolved. However, even under the best of circumstances, reimbursement of credit is likely to be low if at

least some percentage of the crop produced is not sold for cash.

3. CONCLUSIONS

Vegetable gardening has been quite successful in both Seguenega and Dori. Among the reasons that vegetable gardening has done better than lowland rice production in Seguenega are the following:

-- Vegetable growing responds to farmers' needs in generating income during the slack season, when there is no competition with millet and sorghum for scarce resources.

-- Land and water have not, in general, posed the problems for gardening activities that they have for rice.

-- Regular delivery of good quality seed is available on credit for vegetables (including potatoes), and a marketing service is available for potatoes.

The use of GVs has been an effective mechanism for beginning to organize crop production. The development of GVs has progressed further in Seguenega than in Dori because (1) more resources have been available in Seguenega through SIRD's emphasis on integrating project components, (2) the ORD was and is much further developed in Yatenga than in the Sahel, and (3) Mossi communities have a much stronger tradition of cooperative action than do Fulani communities. In both locations, a good deal of additional support is required, particularly in the areas of input delivery, credit fund management, water supply and control, and marketing.

Marketing and water supply are the two major constraints to increasing vegetable production in both Seguenega and Dori. Further expansion of the programs must, therefore, proceed judiciously. The improvement of lowlands offers a significant opportunity for increasing production by bringing otherwise unused but potentially productive land under cultivation. Further improvements in seed quality and supply, water control, and management practices of farmers must be realized before a significant increase in rice production may be expected.

The Dori project has addressed some key problems faced by farmers relating to livestock, millet production, and energy conservation. To date, however, little significant progress has been made in these areas, largely because of inadequacies and discontinuities in project management.

APPENDIX F

LIVESTOCK PROGRAMS

1. OVERVIEW AND PREPROJECT STATUS

Raising cattle, sheep, goats, and chickens is an integral part of most farming operations on the Mossi Plateau, including the Seguenega Sector. A 1972-1973 study of the entire Mossi Plateau showed that 23 percent of annual per capita income came from livestock and livestock products. Within the Yatenga Organization for Regional Development (ORD), livestock accounted for an even larger share of income -- fully 63 percent of direct cash, on-farm income, compared to a total of 15 percent for all crops combined.

The Government of Burkina Faso Livestock Service estimates livestock population in the Seguenega Sector and the entire Yatenga ORD in 1983 as follows:

	Cattle	Sheep	Goats
Seguenega Sector	12,510	12,867	21,733
Yatenga ORD	106,527	109,720	193,218

Government studies indicate that the cattle and small ruminant population of Seguenega has declined by almost one-half since the early 1960s. Aside from the periodic, short-term effects of drought, the overriding reason for this decline is probably the increasing population in the area. As more land has been brought into production of food crops, livestock has not only declined in numbers but also has been forced to retreat to less productive land. This has contributed to the degradation of the region's natural vegetation. Goats are particularly damaging but are also best adapted to survival in a harsh environment.

According to Government figures, goats are by far the most frequently sold and slaughtered animals, followed by sheep, with very little annual turnover of existing cattle herds.

Livestock rearing as traditionally practiced is an extensive production system. Animals are allowed to graze over large areas of uncultivated land, particularly during the dry season. Greater confinement is practiced during the rainy season, as field crops must be protected. Mixed farming is only practiced to the extent that animal manure is often used to grow field crops, and crop byproducts are fed to livestock after the harvest.

Traditional animal husbandry is aimed toward accumulating animals as a store of wealth rather than toward rapid fattening and sale of animals for cash income. Most livestock marketing is done for major religious holidays, for special household occasions, or for major household expenses. Most rural families do not consume much meat regularly during the year. What is usually consumed is chicken, guinea fowl, or goat.

Livestock thus provide an element of economic security in a drought-prone, food-deficit area such as Seguenega. In this role, small ruminants (sheep and goats) have certain advantages over cattle. They are less risky (lower loss resulting from accidental death of a single animal), require less cash to purchase, may be more readily sold, are less likely to spoil after slaughter (when meat is sold retail), and are better adapted to a harsh environment.

Constraints to increasing livestock production in Seguenega include (1) the continued degradation of natural rangeland vegetation because of increasing population pressure and uncontrolled, extensive grazing practices; (2) a limited supply of supplemental feed, and the hesitancy of farmers to invest in such feed; (3) limited veterinary services; (4) inadequate roads in some locations; and (5) the absence of any cold storage facility in the entire Yatenga ORD.

The livestock service is responsible for all the technical aspects of livestock production, and since 1976 the Office National de l'Exploitation des Ressources Animales (ONERA) has been responsible for coordinating livestock marketing. Both the service and ONERA have limited resources and so have been unable to date to attack comprehensively the problems of livestock production and marketing noted above.

A network of bush, collection, redistribution, and terminal markets makes up the traditional marketing system for both poultry and livestock. Some slaughtering is done at each type of market, but the principal activity is the movement of animals through traders toward the terminal markets. The major foreign terminal markets have been in the Ivory Coast, Ghana, Togo, Benin, and Niger.

Within the Seguenega Sector, Berenga, Kalsaka, Koussouka, and Seguenega Town are the main livestock markets. Within Yatenga, larger collection and redistribution markets include Yako (South of Seguenega, on the Ouagadougou-Ouahigouya road), Nouna, Thiow, and Youba.

To date, ONERA has devoted its energies primarily to planning the eventual modernization of livestock marketing channels (including stockyards, feedlots, refrigerated slaughterhouses, and transport facilities) and the growth of the processing industry for meat and livestock byproducts. Concentrating on national programs primarily related to export, ONERA has thus far had little impact on livestock marketings as currently practiced in Burkina Faso.

2. ACTIVITIES IN THE COMPONENT

2.1 Description of Activities

2.1.1 Objectives

The purpose of the Seguenega Integrated Rural Development Project (SIRD) livestock component is to "support, improve, and promote animal husbandry in the sector of Seguenega with parti particular emphasis on small ruminants and poultry activities." It is a multifaceted program designed to raise the cash incomes of producers by improving livestock production techniques, health services, and genetic stocks, while minimizing additional degraation of the environment (by use of supplemental feedings).

2.1.2 Subcomponents and Their Implementation

Subcomponents and their implementation are listed in Appendix A. The livestock service administers SIRD's livestock component in cooperation with the ORD's production and extension personnel. The ORD officer is a regular employee of the service and reports to the director of the Provincial Service in Ouahigouya. The Africare advisers were expatriates, then replaced by Burkinade advisers, and finally dropped altogether.

Currently, the staff at the Livestock Center in Seguenega includes a nurse veterinarian, one extension agent working only on livestock, one driver, and three laborers. Although the Service administers the program, it maintains no separate budget for project activities. All funds, therefore, must be solicited from and approved by SIRD.

Beneficiaries. Although it is impossible to give precise numbers of participants in each subcomponent (especially veterinary services), we may use the most recent achievement records by subcomponent to estimate the total number of participants to date. Thus, we may say that roughly 7,000 persons have participated directly in the livestock program, the largest numbers receiving veterinary services or training. If we include all household members, we have roughly 59,500 direct beneficiaries of SIRD livestock components.

Costs. The budget contained in the Project Paper allocated $759,700 for all livestock activities, including large segments for U.S.- supplied technical assistance and equipment and $77,700 for revolving credit funds. If we assume that 86 percent of this amount has actually been spent during the first 5 years of the project (i.e., proportional expenditures among components), then $653,342 has been spent for the livestock component. This amounts to $10.98 per direct beneficiary.

Africare has recently estimated that $131,925 has been spent on livestock activities, excluding U.S.- supplied technical assistance and equipment. If we accept this figure, adding in the amounts budgeted for U.S. supplies and personnel, we arrive at a total expenditure of $420,125. This amounts to $7.06 per

direct beneficiary.

2.2 Findings and Analysis of Impact

2.2.1 Quantitative Measures of Output Related to Targets

Table A-1 in Appendix A lists output targets and the most recently available information on actual achievements in each subcomponent.

2.2.2 Quality and Appropriations Quantitative Measures

The quality of the training program has varied over time. Training activities got off to a late start, which no doubt had negative effects on other livestock activities.

Although the Poultry Center has been established, it has never really been a scientific center for experimentation in breeding, feeding, laying, and disease control, as was originally envisioned. It has functioned more like a simple chicken house for breeding and supplying feed, medicines, and production assistance to farmers.

Most of the purebred cocks and hens were distributed during the early stages of the project. Many of these birds fell victim to diseases and died. The only village demonstration flock that achieved some success was at Sittigo.

The exchange of Bali-Bali rams for local rams has been discontinued. As of 1984, most Bali-Bali rams were distributed on credit under the fattening program; those distributed strictly for crossbreeding are sold for cash at the purchase price.

Supplemental feed and medicines have recently decreased in availability to farmers. This is largely because of a lack of funds, according to the current chief of the local livestock service. Lack of funds has also limited other activities, notably the upgrading of the center and the expansion of the Sheep Multiplication Center's herd.

It is difficult as yet to see any substantive results or recommendations forthcoming from the preliminary production and marketing study.

2.3 Outlook for Continuation of Activities

2.3.1 Coverage of Recurrent Costs

Africare estimates that a maximum of $32,156 per year is required for operating expenses of the livestock component. Most of this amount is for the salaries and other expenses of livestock officers. Under an alternative scenario whereby the component's Mack truck is sold and transportation and salaries are provided by the ORD, annual costs are estimated to be $12,456.

Available information is incomplete to determine the extent to which the current livestock activities can generate sufficient income to cover these recurrent costs. It is clear that the program is not at present financially self-sufficient.

2.3.2 Replicability and Sustainability

At present, the Bali-Bali fattening and crossbreeding program is the heart of the entire SIRD livestock component. It is extremely popular and profitable and therefore should be easy to sustain and replicate in other areas. The livestock health and veterinary services subcomponent is also popular and provides an important service; there is no reason why it cannot also be financially self-supporting if it is operated on an independent revolving credit fund that accrues interest. If the educational and supply aspects of the supplemental feeding program can be worked out, it forms an important (and potentially popular) adjunct to any continuing livestock component. Supplemental feeding will be brought along only as fast as farmers are able to be convinced of the economic attractiveness of the program and in turn demonstrate a willingness and ability to reimburse their loans.

Training is another key element for the successful continuation of the livestock component. There is a need not only for more timely and comprehensive training of extension agents and farmers, but also for closer supervision of participating farmers. This is nowhere more evident than with the demonstration poultry flocks. The core staffing of the Livestock Center would also need to be increased and upgraded to ensure more effective management of activities, including control of funds.

The long-term scope for expansion of livestock production depends on the nature of the demands made on the physical environment and on the ability of traditional or new markets to absorb this increased production. Therefore, studies addressing these questions are critical because they must provide a framework for any future activities.

3. CONCLUSIONS

3.1 Bali-Bali Crossbreeding and Fattening

The livestock component has achieved significant success in the Bali-Bali sheep crossbreeding and fattening programs. roject staff are currently concentrating on the fattening activity rather than on the crossbreeding activity, because of the great interest shown by farmers and because farmers who accept a Bali-Bali ram for fattening will almost always crossbreed it at least once before selling it. When other funds are available to the farmer to repay the project for the ram, wheat bran, cottonseed, medicines, and mineralized salt lick after the allotted 6-month fattening period, farmers often choose to retain the ram for developing their own crossbred (or purebred) herd. Farmers have little problem selling their fattened ram, because the project distributes the animals in March and collects reimbursements in October to coincide with the holiday of Tabaski.

There is little doubt that farmers find crossbreeding and fattening profitable. There were 1,200 requests for the Bali-Bali rams by farmers in 1984, but the project was only able to satisfy 199 requests. In the fattening program, the farmer reimburses the project after 6 months for the purchase price of the animal, all feed, and other supplies provided, plus interest. The cost of transporting the sheep from various points in the Sahel ORD is not included in the farmer's purchase price. The midterm evaluation estimated that farmers averaged between FCFA 6,370 and 7,590 profit per ram, based on the difference between the selling price and the above costs. The purchase price of most of the animals distributed in 1984 ranged from FCFA 6,000 to 12,000 or more, particularly if the sheep could be tranported to the Ivory Coast or Ghana.

Developing a herd of crossbred or purebred Bali-Bali sheep is of interest to farmers in its own right. Mature carcass weight of Bali-Bali sheep can be three times the weight of local sheep, and the first-generation crossbreed can weigh twice what its mother does at maturity. Hence, there is a great difference in price between a Bali-Bali and a local sheep. Crossbred sheep have thus far been more resistant to disease and climate in the Seguenega area than have pure-bred Bali-Bali sheep. In the long run, crossbreeding has a greater potential for overall impact than does fattening, in that lasting improvements in genetic stock can result.

3.2 Livestock Health and Veterinary Services

The livestock health and veterinary services provided by the project have affected more livestock producers than any other services provided by the livestock component. There has been increased availability of immunizations, medicines, and veterinary care throughout the sector as a result of the program. Livestock officers have circulated widely and have provided medicines on credit. There are indications, however, that a lack of funds has reduced the effectiveness of the program recently.

3.3 Supplemental Feeding Program

The success of the supplemental feeding program has been limited by problems in the poultry-breeding and cattle-fattening programs, periodically insufficient supplies of cottonseed and wheat bran, the limited ability of extension agents to convince farmers of the value of supplemental feeding (vis-a-vis its cost), and, at least recently, a lack of funds to purchase feed at the center. For these reasons, most supplemental feeding is now channeled through the sheep-fattening program. With the prospect of quick returns on their investments, farmers have been willing to accept supplemental feed costs as part of the program.

3.4 Livestock and Poultry Marketing

Marketing of livestock and poultry is still done through the traditional means. There is potential for good market expansion to neighboring countries, including Nigeria and the oil-rich North African nations. The Ivory Coast should continue as a major export market as economic growth progresses, particularly given the proximity and solid transportation links between the two countries.

Provided that no new barriers to trade are introduced for livestock, much market expansion can probably occur through the traditional marketing system. However, livestock producers would benefit greatly if they could count on a consistent market throughout the year, especially if they were relieved of some of the burden of transportation. This might be enough incentive for some producers to switch to more intensive income-generating mixed-farming operations.

Two other aids to marketing would include a cold storage facility for meat in Ouahigouya and a good road linking the Sector to Yako (and the Ouagadougou-Ouahigouya road).

3.5 Livestock Production Studies

Studies relating livestock production potential to environmental constraints are needed. These, along with the proposed marketing studies, should provide the necessary guidance for future livestock production activities.

3.6 Staffing of Livestock Component

Staffing of the livestock component has probably been insufficient to manage effectively all the varied and complex

activities within the component. The frequent turnover of those in charge of the component has also retarded progress in some areas, notably training, which in turn has affected all of the other component areas. Because of insufficient staffing and funding, the Livestock Center in Seguenega has not progressed to become an institution capable of conducting wide-ranging scientific experiments, as had been planned. Assistance is also needed in financial management. Funds within the component recently appear to be dwindling, which may be due in part to imperfect financial management of activities.

3.7 Poultry Program

The poultry program has been held back by technical problems that can only be resolved by intensive education of villagers. The training of extension officers and farmers has been late starting and uneven in its progress. The poultry program developed serious problems very early because the imported purebred chickens were not resistant to local diseases. There were substantial losses even at the project Poultry Center, and the mortality rate was much greater among village demonstration flocks and those birds exchanged directly for local chickens with farmers. Total confinement of the flocks was required for their survival, but extension agents were not equipped to convince farmers of this fact. The only demonstration flock that has succeeded has been under the cross-supervision of SIRD livestock staff. No long-term solution may be expected until greater resources, particularly personnel, are allocated to the Poultry Center and until an effective training program can be carried out for farmers and extension agents. The current use of Young Farmer Training Centers (CFJA) for demonstration flocks is probably a good interim strategy.

3.8 Training

The importance of solid training for livestock officers, extension agents, and farmers has been effectively demonstrated over time. Insufficient or late training of extension agents (and hence farmers) in the areas of poultry production techniques and supplemental feeding has adversely affected these activities.

Excellent training manuals covering small ruminant and poultry production, in both French and Moore (Mossi language), were produced within the livestock component -- but not until 4-5 years after project inception. At the same time, a training program was established, which included the following: (1) a series of 1-day "sensitizing sessions" in all 45 villages covered by the project to introduce villagers to the SIRD livestock activities and to determine their interests; (2) 5- to 10-day training sessions in small ruminant production for ORD extension agents, livestock agents, and CFJA instructors; and (3) 5-to 10-day training sessions in aviculture and small ruminant

production for a limited group of motivated farmers from different villages (paysans selectionn s).

Unfortunately, the livestock officer who coordinated these training materials departed soon thereafter. His replacement only remained with the project a few months and was in turn replaced in December 1983 by the current chief of the Local Livestock Service. At the same time, the other professional position of the project was vacated. This turnover and loss of key personnel has meant that the training program has not as yet been as comprehensively administered as planned.

3.9 Long-Term Effects of SIRD Livestock Programs

It is too early to see the long-term effects of the SIRD livestock programs on the fragile ecology of the region. The increasing population and resulting land pressure limit the scope for expansion of livestock production under the traditional extensive production systems. Thus, the project's emphasis on supplemental feeding is well placed. The discouragement of goat raising is also important, because goats are known to be particularly destructive to the environment. Additional studies will be required to determine the sector's capacity to expand sheep and cattle production under increasingly intensive production systems.

3.10 Revolving Funds

The revolving funds for sheep fattening and supplemental feeding were intended to generate enough earnings from interest payments to help support the other activities. Judging by the current lack of operating funds for the center, insufficient income is generated to run effectively all activities. It is unclear how much of the problem has been caused by faulty management of the credit funds, poor reimbursement rates, hidden subsides (e.g., free transport of Bali-Bali sheep from the Sahel), or simply too many activities funded from too small a source. In any case, additional staff support is needed for bookkeeping.

3.11 The DIRD Livestock Feed and Medicines Component

The Dori Integrated Rural Development Project (DIRD) project to supply feed and medicines for livestock operated only in 1979/1980. It was dropped because the DIRD coordinator who started the project departed and his successor was inexperienced in livestock production. The original project was never able to provide medicines but did produce forage fields for 1 year. The purpose was to replace cottonseed for supplemental feedings. The project was apparently very popular among villagers, which is not

surprising given the importance of livestock to the local economy.

APPENDIX G

RURAL ROADS IMPROVEMENT

1. OVERVIEW AND PREPROJECT STATUS

Only the Seguenega Integrated Rural Development Project (SIRD) includes a roads improvement component; therefore, this appendix covers only the Seguenega Sector, an area approximately 50-60 kilometers (km) from north to south and 20-30 km from east to west. Before SIRD, the only all-weather road within the sector was the one between Ouahigouya and Kongoussi. All other roads were only dirt tracks, subject to frequent washouts and thus often impassable between June and September. The absence of all-weather roads within the sector had a negative impact on availability of Government and private services within the sector and on the ability of farmers to market their crops and livestock.

2. ACTIVITIES IN THE COMPONENT

2.1 Description of Activities

2.1.1 Objectives

The objectives of the rural roads component was the establishment of a locally maintainable road structure that would permit year-round contact with the majority of people in the Seguenega Sector. The basic philosophy was to improve roads to all-weather status by selectively repairing and eliminating trouble spots, rather than by completely rebuilding them. This approach costs only about half of what a complete rebuilding costs. Much of the construction and maintenance work has been done by work crews organized through village groups (GVs). This was a means of ensuring that roads would be maintainable, after upgrading, by the villagers themselves.

2.1.2 Implementation

The implementation plan called for improving two roughly parallel roads that can run north to south through the sector. The schedule has been followed largely as planned. The Yatenga ORD has been responsible for coordinating the roads improvement component. They have received assistance and support from the Burkinabe Ministry of Public Works (PW) and Africare, Inc. This

support has taken the form of a variety of technical assistance and major road-working equipment.

PW officially assumed responsibility for the road work in April 1982. Prior to that date, PW had participated in tests of equipment and helped to train equipment operators. PW assigned a crew chief, a general supervisor of activities, and a part-time civil engineer to SIRD. This team has been under the supervision of the Regional Director of PW, who is based in Ouahigouya. The ORD has remained responsible for supplying parts and gas and doing repair work. Because the major road improvements were completed in 1983, the roads crew and heavy equipment have only been used occasionally during the past year.

For both construction and maintenance, villagers have been organized into work brigades under the direction of crew chiefs and other skilled laborers. The emphasis has been placed on using as much manual labor and locally available materials as possible. For example, simple cross-washes have been constructed as often as possible, instead of corrugated metal or reinforced concrete culverts. Cross-washes consisting largely of rocks and gravel are maintained relatively easily, and water is allowed to follow its natural course over a low-lying area.

Beneficiaries. It is assumed that the entire population of the Seguenega Sector, or roughly 128,000 persons, has benefited in one way or another from the project's road improvement activities.

Costs. As is usual in integrated rural development programs, the roads component was the most expensive component of the SIRD project, largely because of heavy equipment purchases. If we assume that 86 percent of the amount budgeted for roads improvement has actually been spent during the first 5 years, the resulting total cost estimate is $1,207,784. Africare, on the other hand, has estimated that $319,073 was spent over 5 years, excluding U.S.-supplied personnel and equipment. The latter two categories would bring total expenditures to $875,973. Depending on which cost estimate is accepted, the total cost per beneficiary is equal to either $9.44 or $6.84, respectively. These figures are close to the estimates made in the 1976 draft of the Project Paper ($5.00-$8.00 per beneficiary).

2.2 Findings and Analysis of Impact

2.2.1 Quantitative Measures

The entire road network of 106 km was improved by mid-1983 as planned. Work crews in many villages have been organized and have participated in construction and maintenance, as stipulated.

2.2.2 Quality and Appropriations of Outputs

It was not possible for the team to inspect the entire network of roads improved by the project. The sections that were observed, Koussouka-Bouga-Kalsaka-Berenga, were generally in good repair, certainly much better than unimproved roads in the area. There were, however, some bad spots where the early rains of the season had caused localized deterioration of the surface.

2.2.3 Impact Issues

Overall Impact. Roads improvement is generally acknowledged to be a critical and successful component of SIRD. There have been tangible benefits to the general population of the area, as well as to Government agencies. These benefits have been largely as originally intended. The improvement of roads has definitely had a positive effect on the implementation of other SIRD project components. Health teams, veterinary health teams, agricultural extension agents, and others have been able to reach their clients much more regularly. The trucks operated by the Yatenga Regional Marketing Cooperative (URCOMAYA) have been able to distribute potato seed and collect potatoes from farmers in their villages.

People living in remote, rural areas of the sector can now reach Seguenega or Ouahigouya more quickly when they need to (e.g., to enter the hospital in Ouahigouya or to make purchases only possible in larger towns). Easier circulation within the sector means greater flexibility for villagers in marketing their crops and livestock, in attending social events, and in purchasing consumables.

Participation of Villagers. Work crews have been organized through local GVs, an organizational structure that ties in with the overall SIRD objective of stimulating villager participation in all activities. Project personnel and villagers whom the team contacted while they were working on a section of road expressed no complaints about recruitment. This particular crew had worked four times during the past year on their section of road and showed no resentment at having to do so. Africare estimates that at least 6,000 villagers have participated in road construction and maintenance. They have worked under the supervision of road crews in collecting gravel, sand, and rocks; clearing land; and helping to build cross-washes.

Appropriateness of Methods and Equipment. The general method of making maximum use of local manual labor and construction materials is proving to be workable and effective. Roads are being improved more cheaply than if more capital-intensive methods had been used, and maintenance appears more likely to

continue. The emphasis on cross-washes over manufactured culverts seems well founded, although the quality of the work could have been more closely controlled for some of the cross-washes that the team checked. The use of manufactured culverts may have increased during the year in which PW directed the final road improvements.

There were some cases of inappropriate and late-arriving equipment, which somewhat delayed work during the early stages of the project. For example, loaders were too small for the dump trucks; a compactor was not steel wheeled and self-propelled; a water tank was not self-propelled and had to be mounted on a transport truck; and some spare parts for a dump truck took more than 6 months to arrive.

Maintenance. Although work crews of villagers appear to be available and willing to work, they need guidance. In particular, there is no apparent system for monitoring road conditions within a village. With the completion of the major improvements in 1983, villagers have had less frequent contact with the professional road crew. There is a need for almost constant vigilance in road monitoring and maintenance because heavy rains can cause immediate deterioration, as was shown during the team's travels. If such deterioration is allowed to continue, reconstruction becomes much more complex and costly.

The mid-term evaluation report cited the following regular maintenance requirements:

-- Monitoring for washboard effect and regular raking to correct

-- Grading at the beginning and end of the rainy season

-- Recharging the surface with lateritic gravel every 5 years

No regular system for maintenance procedures seems to exist. If the condition of roads is only monitored and corrected on an ad hoc basis, then localized deterioration is to be expected where villagers are less diligent.

External Connecting Route. Although the circulation of vehicles, goods, and people has clearly increased within the sector, there remains a need to construct an all-weather connecting road to either the Canadian road (providing access to the Kongoussi-Ouagadougou road and to the Yako-Ouagadougou road) or directly to the Yako section of the Ouahigouya-Ouagadougou road.

There are as yet no obvious signs of an increased number of commercial vehicles (i.e., private merchants providing agricultural inputs, consumer goods, or transport or marketing services) entering the sector from other regions. There is, however, the potential for rich activity. There is also a great potential for

farmers to increase their own direct sales of vegetables and livestock in major external markets if a connecting route to the southeast is established.

2.3 Outlook for Continuation

2.3.1 Coverage of Recurrent Costs

Africare estimates that the annual operating costs to ORD would be $110,009, provided that ORD retains all the road equipment. If PW assumes control of part of the equipment (and ORD retains only the bulldozer, the grader, two front-end loaders, one dump truck, four drivers, and one mechanic), ORD's annual operating costs would be reduced to $52,873. It is possible that in fact all equipment will be turned over to PW after the close of the project, in which case ORD recurrent costs would be negligible.

2.3.2 Sustainability and Replicability

The main argument for sustainability of the roads component is that improved roads are a priority for the Government and villagers alike. PW has been integrated into ORD activities over recent years, and a good working relationship has been established.

It is not yet determined to whom roads equipment will be assigned at the close of SIRD. The original agreement was that ORD would assume responsibility at that point, but both ORD and PW now prefer that the equipment be turned over to PW. The equipment is still mostly functional, so with proper management it should be available for continued maintenance of project roads and for additional improvement of roads inside and outside the sector. Whoever takes charge of the roads improvement program will need to help village groups establish a more regular system of monitoring and maintaining their roads, and that should include the cost of getting the equipment.

3. CONCLUSIONS

The improvement of rural roads has had an important impact on all components of SIRD, allowing ORD/SIRD officers to contact villagers on a regular, year-round basis. This would not have been possible otherwise. Rural residents have likewise been able to circulate (with their goods) more easily within the sector and, when necessary, reach destinations such as Seguenega Town and Ouahigouya more rapidly.

The participation of villagers on road crews has been

extensive and effective. The emphasis on local materials and labor has been well founded, decreasing costs and increasing the likelihood of continued road maintenance by villagers.

Two problems requiring further attention are the lack of a connecting road from the sector toward Ouagadougou and the apparent lack of a regular system for monitoring and maintaining roads in villages throughout the sector.

The working relationship between PW and ORD has been satisfactory to date. PW acquired logistic control of the road work in 1982, and ORD has continued to provide parts, gasoline, and repair work. Future responsibilities and control of equipment have yet to be determined.

APPENDIX H

REFORESTATION AND SOIL CONSERVATION

1. OVERVIEW AND PREPROJECT STATUS

The Forestry and Water Service, within the Ministry of the Environment and Tourism (MTET), is responsible for all forestry activities within Burkina Faso. They had carried out some reforestation work in the Seguenega Sector for several years prior to the beginning of the Seguenega Integrated Rural Development Project (SIRD). This consisted mainly of small plots of fast-growing species (neem and casia siamea) within individual compounds, along roads, and in markets. Running concurrently with SIRD activities has been a village forest program carried out under separate financing by MTET in other sectors of the Yatenga Organization for Regional Development (ORD).

The need for reforestation and soil conservation has become more apparent in recent years in Seguenega as elsewhere. The increasing population of the area has put more and more pressure on natural vegetation of all types. The expansion of land under crop production has forced livestock onto more marginal rangeland, accelerating the destruction of natural grasses and woody vegetation. The process of desertification has also been aided by the traditionally extensive nature of livestock production in the area (in particular by the continued rearing of goats) and by extended periods of drought during the past 10-12 years.

2. ACTIVITIES IN THE COMPONENT

2.1 Description of Activities

2.1.1 Objectives

The overall objective of the reforestation and soil conservation component was to realize the "establishment of a soil conservation unit capable of carrying out soil, water, and vegetation conservation activities for local communities of farmers or herders in Seguenega." The Project Paper specified that the newly established base of operations in Seguenega was to do the following:

-- Provide trees, "limited amounts of material," and some technical supervision for tree-planting operations

-- Provide extension workers "with the necessary backstopping . . . to effectively promote soil and vegetation conservation activities"

-- Provide advice to farmers in establishing live fences and other soil protection measures

-- Assist revegetation schemes generally in the area

2.1.2 Implementation

The subcomponents were to include a project tree nursery, a series of village wood lots, and a small conservation unit.

Virtually all work has been orchestrated and administered by MTET. MTET assigned a full-time forester to the project, based in Seguenega, who works under the supervision of the Provincial Director of Environment and Tourism in Ouahigouya. The latter's assistant has also spent some time on SIRD activities. MTET has operated its own tree nursery in Seguenega while assisting in the development of the project-sponsored nursery.

The salaries of the three laborers at the project nursery have been paid for out of project funds. The only other financial assistance provided by the project has consisted of material support for the SIRD nursery, including the supplies for digging two wells (one has been completed). The approval for any of the above expenditures must come from SIRD before the funds are actually released to MTET. All other operating expenses have been provided directly by MTET.

The procedure by which village woodlots have been established is as follows. In April, Forestry and Water Service staff tour the villages to stimulate and gauge the interest in particular localities. In May, staff members make a second tour to determine what is feasible and receive the specific material requests of villages. In late June and early July, the Service sends out the necessary supplies (mainly seedlings) for transplanting. They subsequently visit the woodlot sites to provide advice and supervision to village participants.

Beneficiaries. Africare, Inc. currently lists 25 completed village woodlots. Although only a limited number of people in each village actually participate in the work, the benefits of such a plantation would necessarily accrue to the entire community rather than to the individual participants. Thus, we may take the entire populations of the 25 participating villages to be the beneficiaries of the component, estimated currently at 31,398. The benefits at present, of course, are nonexistent and will only be very thinly distributed across the population even after the trees reach maturity.

Costs. The Project Paper contains a budget of $124,100 for reforestation and soil conservation. Assuming proportional rates of actual expenditures across components, we may estimate that roughly $106,726 has actually been spent over the first 5 years of operation. Africare estimates independently that total direct expenditures within the component have amounted to $106,920 over 5 years. Using this cost figure, we arrive at a total cost per beneficiary of $3.41.

2.2 Findings and Analysis of Impact

2.2.1 Quantitative Measures of Output Related to Targets

Table A-1 in Appendix A compares targets listed in the logical framework to actual accomplishments through the end of 1983.

2.2.2 Quality and Appropriateness of Outputs

Africare estimates that 40-60 percent of the trees planted in village woodlots have actually survived. MTET estimates a survival rate of only 18 percent (including replantings): 10,302 trees surviving of 56,202 planted through mid-1983. In terms of surface area, MTET estimates that only 16.48 hectares of 98.57 hectares planted through the 1982/1983 season, or 16.7 percent of the surface area, had in fact survived. Therefore, the project has actually fallen far short of its surface area objective.

2.2.3 Impact Issues

Overall Impact. The actual impact of the component on the population of the sector has been minimal. The component is generally acknowledged to be a failure by all participants. The villagers have had little interest because of the high mortality rate of the trees planted and because they perceive the possibility of few tangible benefits even if the survival rate

improves.

Africare-MTET Relations. The working relationship between Africare and MTET has been strained from the outset. There has been a basic disagreement on how much support should be extended directly to villagers. Africare's philosophy is that villagers should willingly contribute not only their labor but also the necessary materials for plant protection and watering. This ties in with Africare's general attitude toward villager participation in all activities. In this case, they also believe that providing chicken wire and watering cans on credit would be futile because reforestation is not an income-generating activity. MTET, on the other hand, is interested primarily in achieving successful plantations and so has believed from the beginning that these basic materials should be provided to villagers in one manner or another.

Furthermore, Africare has been critical of the ability of MTET personnel to carry out their allotted responsibilities. The problem, they maintain, is related to a divergence of the objectives and methods of MTET and those of SIRD. For his part, the current Provincial Director of MTET maintains that the Ministry is faced with insufficient (or nonexistent) funds for training, for the proposed conservation unit, and for direct support of village woodlots--as well as with unnecessary administrative complexities. He submitted an evaluation report examining the failures of the program and making several recommendations for redirecting it to Africare in May 1983, and has yet to receive a response. MTET, therefore, is doing little presently except maintaining the central nursery. The soil conservation unit was never started because MTET wanted to solidly establish the forestry program first.

Coordination. The absence of a central conservation unit and of a solid link between the ORD/SIRD and MTET has resulted in a lack of coordination and planning of activities. It has proved impossible to adjust the program in midstream as problems have developed. In particular, there has been no effective training program to instill in extension agents and villagers an overriding sense of purpose in the program.

Basic Requirements for Success. Regardless of where the blame lies for the component's failures, there are clearly some minimal material requirements for the success of any reforestation effort. Adequate protection of young trees from livestock is required during the first 2 years of growth; lack of protection has been the primary cause of low survival rates. Adequate water must be available, particularly during the early stages of growth. In some villages, insufficient water was available from existing wells; in all localities, villagers would have been encouraged to water the trees more regularly if they had had access to watering cans.

Finally, it is important to select species carefully. During the early stages, acacia senegalais, eucalyptus, and neem were frequently planted. The latter two are nonindigenous, fast-growing trees that do not generally do well in Seguenega. The emphasis has now been switched to more appropriate species, namely, prosipice, nere, and acacia albida.

Motivation of Villagers. Villagers had little motivation to maintain their plantations. Tree-planting is by nature basically a non-income-generating activity whose benefits are only realized after long periods of time. Although lack of economic incentives is a problem inherent in any reforestation project, some interest can be generated by planting trees that fix nitrogen (e.g., prosipice) or produce useful products (e.g., shea nut). Trees may also be spaced widely and farmers encouraged to plant crops among them.

If satisfactory tree protection devices cannot be produced locally or if some assistance in providing water is required, it may be necessary to subsidize village woodlots with these materials if any success is to be achieved. Once a woodlot has become a demonstrable success and villagers have been provided basic materials, an expansion of the plantation should prove to be much less costly.

2.3 Outlook for Continuation

2.3.1 Coverage of Recurrent Costs

Africare estimates annual operating costs of $12,896 to continue the component's activities. Total annual expenses to date have been $21,384, including expenditures by MTET. Because no income is generated from these activities, a continuation of external funding would be required.

2.3.2 Sustainability and Replicability

The component is probably not worth sustaining under the present conditions. A new, more cooperative arrangement would have to be made between SIRD and MTET to ensure that their goals and methods are in agreement. For reforestation to be a success, additional material support and supervision must be given to villagers.

3. CONCLUSIONS

The reforestation and soil conservation component has essentially failed to have significant impact because of the

following factors:

-- The responsible Government ministry (MTET) and the ORD/SIRD have had an ineffective working relationship from the outset of the project, with differing objectives and methodologies. MTET has been in charge of the program, but has not received the support it desires from the project.

-- The basic ingredients required for successful tree plantations (effective plant protection devices, adequate water supply, and appropriate species) have often been unavailable.

-- Villagers lacked sufficient incentives to provide the extra effort and expense required to make village woodlots a success.

-- Soil conservation activities have never gotten underway because MTET attempted to establish the forestry program first.

A totally new cooperative arrangement must be reached between ORD and MTET, or ORD should abandon the program. A basic decision needs to be made on the degree to which village woodlots are to be subsidized (at least to get the program off the ground) by providing villagers with such materials as chicken wire and watering cans.

APPENDIX I

WELLS

1. OVERVIEW AND PREPROJECT STATUS

Availability of water is a key constraint to development in most of Burkina Faso. Most villages rely on hand-dug, wide-bore wells to provide for human and animal consumption and for irrigation, when undertaken. Depending on the geology of the area, these wells must be periodically deepened or cleaned. Because of the lack of improved technology, traditional methods of deepening cannot allow for a maximum depth of more than 1 meter of water, or the well-digger will be in trouble. Consequently, as water tables shift or droughts occur, wells often do not provide adequate water even for human consumption. Women and young girls may spend hours each day waiting for a slow trickle at the bottom of the well to fill a 1-gallon bucket -- with muddy, germ and parasite infested water.

The Government of Burkina Faso has always emphasized modern well construction as a priority, but has rarely been able to keep up with the demand. The lack of adequate data on rainfall, recharge, geology, and consumption all mitigate against a

rational and cost-effective method of ensuring water for the rural populations. The tradition in all ethnic groups requiring that water be given if requested and that it cannot be owned or sold precludes specifying limited use for any water source. Thus covered wells designed to support a human population may be uncovered and virtually emptied for livestock in times of need, and wells dug for irrigation may be used primarily for human consumption, resulting in harvest loss. Determination of what may be considered safe or potable water for humans is as yet a minor consideration -- quantity is of much more importance than quality at this stage of development.

A current goal of the Government is to provide year-round access to 10 liters of water per day per person by 1986. Access to safe water -- however defined -- is estimated to be available to only 25 percent of the population, most of which is urban or periurban. In rural areas, current consumption is estimated at only 5 liters per day, although this average figure obscures the seasonal variations that can force consumption to much lower levels for 2-3 months each year.

Virtually all donors in the country are working directly on well development. Construction of an improved well, with village labor participation, is often a prerequisite for other village activities. Work is administered through the central and regional offices of the Rural Water Service, the Organizations for Regional Development (ORDs), and some private groups. The Peace Corps and other international volunteers have played a major role in establishing techniques for village participation in well construction.

The Yatenga ORD, including Seguenega Sector, benefits from having a respected study of water resources on which to base actions. The French group BURGEAP, cooperating with the Rural Water Service, completed a hydrogeological report in 1975. This report notes that the Seguenega Sector consists primarily of granite and schist, and that topsoil, where it exists, has been generally well conserved. It estimates that almost 55 percent of the wells in Yatenga ORD are dug into the soil cover to a maximum depth of about 30 meters. Only about 25 percent of the wells in Yatenga have water all year round.

Rainfall in the Seguenega region has averaged about 700 millimeters (mm) per year from 1945-1974, with a record low rainfall of 477 mm in 1973. However, this average decreased to 625 mm between 1965 and 1974. It is believed that the water levels in the country now mark a 50-year low period. This fact, coupled with an estimated 10-percent recharge rate (ground water) based on annual rainfall data, signifies future problems for the Seguenega area. Certainly this relatively lower rain-fall, coupled with an increasing population, does not bode well.

Fewer data are available on the Dori region. According to the Save the Children Federation/Community Development Foundation (SCF/CDF) project documents, more than 60 percent of the population has no permanent water source within 5 kilometers of their

homes. Annual precipitation is 590 mm, with most of that falling during a 3-week period in July-August and creating flood conditions. Evaporation is extremely high because of high temperatures and low humidity. Data on existing wells were not available to the team.

2. ACTIVITIES IN THE WELL COMPONENTS OF THE SEGUENEGA AND DORI PROJECTS

2.1 Seguenega Integrated Rural Development Project

2.1.1 Description of the Wells Component

The overall goal of the Seguenega Integrated Rural Development Project (SIRD) is to "improve the quality of life for the 110,000 people [now estimated at 128,000] of Seguenega." A key, but nstated, corollary is that the goal can be achieved through an increase in the number of people having access to a year-round supply of safe water.

The purpose of the overall project is "to achieve an improved network of social services, production opportunities and supportive services within the Seguenega Sector." As one of the supportive services, the relevant output for wells is stated as follows: increased availability of water for safe human and livestock consumption and for gardening and strengthened capability of the ORD to further develop water resources. This output was further defined to include the following:

-- A total of 64 new wide-diameter wells (up to 1.280 meters), as follows:

- 25 village wells
- 24 vegetable garden wells
- 9 primary school garden wells
- 3 health dispensary wells
- 2 forest nursery wells
- 1 poultry and sheep farm well

-- Two masons trained in use of dynamite in wells; two well-equipment mechanics trained to repair and maintain compressors, pumps, jackhammers, and motorized cranes; one crew chief having undergone additional administrative training; each of the 25 villages and 9 primary schools having the capability to maintain pumps installed on wells for human consumption

It is perhaps significant that these definitions did not include the amount of water these wells were to provide, and no provision was made to establish a data collection system to monitor water level, recharge, or consumption. The AID logical framework does include as a "critical assumption" for goal

achievement "no unusual weather conditions."

The total costs for the wells component envisioned in the Revised Project Proposal was $355,100, broken out as follows:

-- $291,700 of AID-appropriated funds, the bulk of it for commodities and equipment, and $31,000 for Africare, Inc. administrative costs. It should be noted that a waiver to enable shelf-item procurement of over $100,000 of these commodities was requested and granted.

-- $30,200 from the Burkinabe Government, all of it for personnel

-- $33,200 from the European Economic Community (EEC) toward equipment and personnel

The beneficiaries of the wells component were to be the people using the 64 wells -- the number of whom were not specified. Spatial distribution of wells was to be left to project implementers.

2.1.2 Findings and Analysis of Impact

Although the project has generally met all its stated quantitative targets, those targets are not relevant to the "improved access to safe water for the people." Lack of data on pre- and postproject conditions, coupled with the drought in 1983 and at the time of the team's visit (1984), yielded little evidence that any of the population was now ensured year-round access to water as a result of the project, although certain service centers (e.g., health posts, forest nurseries) appeared to be functioning more smoothly.

Quantitative Measures of Increased Access to Water. Because of time constraints and the drought, much of the following analysis is from a report done a year earlier.{1} The hydrogeologist who compiled most of the information is Bruce Carpenter, a professional who had worked in other developing countries and had spent 2 years in the Dori region of Burkina Faso as a Peace Corps Volunteer in the mid-1970s.

As of the end of 1983, 58 wells had been dug under the project (see Table A-1 of Appendix A). A total of 15 of these wells had more than 2 meters of standing water in them, but probably only 50 percent of these wells actually provide sufficient water throughout the year. Four wells with adequate discharge have been equipped with a hand pump, against a target of 40 pump installations.

In terms of training, only one person has been trained in use of dynamite, but it was decided that this was a costly method of upgrading skills that should not be continued. Some training of crews had taken place, and some training of villagers

in pump maintenance. This latter point was mentioned as critical to continuation of benefits and problematic in that the pumps purchased appeared to be inappropriate to the conditions of the villages. At any rate, most pumps installed had not been in operation long enough, or were broken at the time of the visit, for the team to get an idea of improved maintenance capability.

Spatial distribution of the village wells appears to have been determined based on need, in consultation with the Seguenega Consultative Committee (SCC); plotting these on a map is not a useful gauge of benefit distribution as preproject water conditions are unknown. Certainly the school and health post wells may be considered useful and appropriately located in terms of social services. A more detailed discussion of the vegetable gardening wells is found in Appendix E.

Quality and Appropriateness of Wells. None of the team members was a qualified hydrogeologist or a well technician, so much of the following technical information is taken from the Carpenter section of the production report noted above.

As stated earlier, "probably only 50 percent of the wells constructed provide sufficient water throughout the year." Well discharge and water table information must be collected to aid in future well projects. Well development, pumping, and testing is an important part of the well installation process. Little information is available on cost per well, or even cost per meter of types of wells. The team developed a strong impression that SIRD staff was moving away from simple well construction, and -- if a follow-on activity were to be designed -- to a more holistic watershed development approach. Although it is conceded that construction of small dams and reservoirs has been observed to increase infiltration and thus recharge, in the absence of meaningful data it is difficult to accept a major abandonment of one approach in favor of another. (In Burkina Faso, a 50-percent success rate may be considered "not bad.") Because little information on impact of the former is available, it is difficult to compare how much more impact the latter may have.

SIRD and others in Yatenga appear to be focusing on public sector well construction and maintenance. SIRD worked extensively through the ORD wells division; the EEC is helping the newly opened Rural Water Service branch in Ouahigouya to develop its capabilities to construct and deepen wells. Various reports have offered suggestions for training village committees, groups, personnel, and others in pump and well maintenance. Although cultural and political considerations may preclude a fee-for-service at the village level for water for some time to come, it is suggested that SIRD may not have paid adequate attention to the capabilities of the private or nongovernmental sector for maintenance. Rather than training Government staff who may or may not have the gas, parts, and time to sustain maintenance schedules, or villagers who may not have the aptitude, SIRD might investigate establishing small businesses for well and pump maintenance in the area. Given the transport and budgetary

situation of the ORD in a likely postproject situation, the team was not sanguine about continuing maintenance after Africare departs.

Use of the trousse coupante method of well deepening appears to have been appropriate and, after some initial problems, was successful in the area. Use of the Manyo (Robbins Myers) pumps is less heartening. Certainly, villagers can remove pumps and hand-haul water, so total impact would not be lost. However, it appears that in the future the ORD or Africare might investigate other types of pumps for village use and maintenance.

{1} Africare, "Promoting Food Production, Marketing and Watersheds Resource Development in Yatenga, Upper Volta: A Study" (April 1983).

2.2 Dori Integrated Rural Development Project

2.2.1 Description of the Wells Component

The overall goal of the Dori Integrated Rural Development Project (DIRD) is to "improve the quality of life for the people in selected communities of the Sahel Region." In terms of water and wells, the intial AID document included some impressive targets: a 20-percent increase in absolute water supply; a 10-percent increase in potable water (undefined); four garden irrigation projects; and one animal water project. As with other components under the SCF/CDF project, specific budgetary information and specific beneficiary information was not provided. All activities were to be undertaken within the community-based integrated rural development rubric, with assistance from SCF/CDF when necessary.

2.2.2 Findings and Analysis of Impact

As of the June 1979 evaluation, one well had been installed at Mamsiol; as of June 1984, five additional wells had been installed two in Diomga, and one each in Touka, Gangaol, and Gomo). No data on quantity or quality of water are available, so it is difficult to determine if the percentage targets men mentioned earlier have been achieved or not. The simple "Baseline Surveys" in 1979 note that pumps exist in most villages already -- usually in connection with a livestock watering hole or a gardening project. Given the spread of villages, it appeared that about 30 percent of the people in the nine villages and 10 percent in the two villages used pumped water. The construction, deepening, and improving of the wells through SCF/CDF has surely increased this percentage in terms of access.

The wells program, like most other SCF/CDF activities, is run on credit, with villages getting 3-5 years to pay off loans for well improvement. They are given a year of grace because of drought, so many of the five wells installed after 1979 have only made one or two installment payments. Payment is considered by SCF/CDF to be 100 percent.

Wells are actually deepened or installed through an indigenous nongovernmental organization (NGO), the Union Fraternelle des Croyants (UFC). This organization is made up of Muslims and Christians and has been in existence for over a decade. Through grants from external NGOs, it has built up an impressive inventory of well-digging equipment and materials, and operates primarily on a fee-for-service basis. SCF/CDF pays the UFC to dig or deepen wells, then receives payment from the village over time. Maintenance of equipment and training of construction crews is thus external to this project and appears to be going well in the hands of the private sector.

Maintenance of pumps and operation of wells is handled by villagers, usually the Health or Central Committees, with assistance as needed from UFC and SCF/CDF. Problems with pumps -- outside of shortages of gas, which are frequent in the Sahel -- did not appear to be a major problem. It appears that the pump technology is more widely understood in the Dori Region than in Seguenega because Dori has a deeper water table and long-standing (i.e., colonial) reliance on small-bore holes with pumps for livestock.

Under the health program, SCF/CDF has worked with villagers to improve pump sites, separating areas for washing clothes, watering animals, and drinking. Because the team's visit coincided with the end of the dry season when water was minimal, observation of these multiple-use sites was not possible.

Cost of the wells and water program was unavailable, so a cost-per-beneficiary calculation is not possible.

APPENDIX J

CEREAL BANKS IN THE DORI INTEGRATED RURAL DEVELOPMENT PROJECT

1. DESCRIPTION OF ACTIVITY

The purpose of the cereal banks is to buy and stock a major quantity of cereals shortly after the harvest when prices are low and to sell it to bank members when supplies are scarce and prices are high, thereby ensuring a supply of cereals to the members at noninflated prices. According to Save the Children Federation-USA (SCF) estimates, about 4,400 villagers are beneficiaries, of which 4,000 are direct beneficiaries of banks in

their villages and 400 are from surrounding villages.

In establishing a cereals bank, SCF works with a village group, which elects an ad hoc subcommittee to manage the village bank. The village group constructs a grain storage warehouse generally of 25-ton capacity, for which SCF finances the required building materials through a loan and the transportation and skilled labor costs through a grant. The village group contributes unskilled labor, local material (bricks, gravel, sand), and land. To finance grain purchases to stock the banks, SCF makes annual loans to each bank. When members own grain stocks have been exhausted, the cereal bank sells to members of the group on credit at 8-percent interest. After the harvest, members repay the cereal bank, which then repays SCF. The interest proceeds from the banks' sales to members go to the bank's cash fund (caisse) and gradually accumulate.

To date eight cereal banks have been completed in Gangaol, Diomga, Selbo, Sambonaye, Mamassiol, Gomo, Welde, and Bayel.

2. ACHIEVEMENT OF TARGETS

According to the evaluation team's conversations with the villagers, the village cereal banks are contributing to food security for the villagers, ensuring from 20 percent to 40 percent of village needs. For example, in the first half of 1984, the bank in Selbo, a village of 1,200 inhabitants, acquired 24.8 tons of cereals, representing 20 percent of the needs over that period (200 kilograms (kg) per year/per capita times 1,200 inhabitants). During the same period, the Gomo cereal bank received about 21.3 tons representing 40 percent of the needs of its 500 inhabitants, and Diomgo received 9 tons, roughly 25 percent of quarterly needs.

The activity of the cereal banks has helped to build managerial skills for community development in the beneficiary villages. The constitution of village group subcommittees, their ability to supply food regularly and inform the villagers of the cereal banks' financial and supply status are positive achievements. However, the managerial skills need to be improved, and the prevalent illiteracy of the banks' managers constitutes an obstactle to establishing an efficient record system. A review of the status of the individual villages' credit operations follows.

2.1 Gomo

Before the 1983 drought, no credit system was operating in Gomo. Villagers paid cash for cereals. Because of the high demand for grains in 1983, the village cereal bank decided to

charge 20-percent interest per year on credit operations. In 1984, SCF's credit terms became more concessional to provide assistance during the drought. It was decided that 100 kg would be reimbursed at the rate of 100 kg + FCFA 750, or paid back at FCFA 10,000 + FCFA 750, that is at 7.5-percent interest per year. In Selbo the 1984 credit system consisted of loans in-kind with two reimbursement options: 100 kg to be reimbursed at the rate of 150 kg 1 year later or paid back within 1-5 months without interest.

2.2 Diomga

In Diomga, there is currently no credit system because of previous unsuccessful experience. Villagers pay for cereals in cash. The credit system in the villages is empiric, nonstandardized, and sometimes spontaneous and improvised, resulting from a lack of monitoring services or literacy skills among the village-level managers.

The cereal banks' role in reducing inflation is positive. All the beneficiary villages stated that although the banks' re-sale prices are higher than Government of Burkina Faso official prices, they are lower than those of private merchants. In Diomga for instance, the merchants' price is approximately 30 percent more than that of the cereal bank. Therefore, the goal of reducing inflation during the hunger season is achieved to the extent that the cereals provided meet the total need.

In the beginning, all the banks' grain was purchased locally, but local annual grain collections have been gradually diminishing. From 1980 through 1982, SCF estimates that the cereal quantities usually collected from the villages declined to only 50 percent of the banks' annual stocks. This pattern of supply was accelerated in 1983-1984 when SCF, USAID, OFNACER, private and other NGOs supplied grain to compensate for the decline in local production resulting from the drought.

3. REASONS FOR ACHIEVEMENT OR NONACHIEVEMENT OF TARGETS

The construction of cereal warehouses with local materials permitted reduction of costs and thereby reduction of the debt to be reimbursed by the beneficiaries. The cereal banks also address the national problem of cereal deficits and meet the beneficiaries' need for regular supplies of food, particularly in drought years. However, the lack of managerial skills to set up an efficient credit and records system remains a problem as does SCF's inability to provide appropriate advisory and monitoring services to the managers. The result is some confusion and lack of reliable information on the credit status of the banks.

4. COSTS

The construction cost of an SCF-supported warehouse was estimated at FCFA 340,000 in 1983, far below the national standard of FCFA 600,000 adopted by DIRD. Their maintenance and management costs are low, providing important benefits to the villagers at minimized costs. The villagers repeatedly stated that banks are the SCF/CDF's most useful activity for meeting villager needs.

5. ANALYSIS OF LASTING CHANGES RESULTING FROM ACTIVITY

Through periodic meetings and briefings with the banks' management subcommittees, the villagers learned how to deal with the cereal crisis in general, and particularly the 1984 drought, by rationing grain supplies. In keeping permanent grain stocks throughout the year, the banks stabilized food supplies and provided increased food availability in the needy, seminomadic Sahel Zone.

APPENDIX K

LIST OF PERSONS CONTACTED

1. SEGUENEGA INTEGRATED RURAL DEVELOPMENT PROJECT

Sah'r J. Tongu, Africare Country Director and Coordinator of SIRD
Rabihah Marteen, Africare Administrative Officer
Sawadogo Baba, Haute Commissaire, Province of Ouahigouya
Sawadogo Julian, Director, ORD/Yatenga
Sompougou Norbert, Prefet, Seguenega
Boly Amadee, former Sous-Prefet, Seguenega
Kabore Youga Nicolas, Chef de Secteur de Seguenega
Ouedraogo Desiree Yacouba, former Chef de Secteur, Seguenega
Ido Gilbert, Conseiller Technique de Credit, SIRD
Diabate Amadou, Chef de Service, Planification, ORD/Yatenga
Banissi Bangba, Chef de Service, Vulgarisation, ORD/Yatenga
Kabore Michel, Chef de Service, Amenagements des Espaces Rurales, ORD/Yatenga
Traore Amadou, Service Institutions Rurale et Credits, ORD/Yatenga
Ouedraogo P. Rafael, Chef de CFJA, ORD/Yatenga
Kondabo Mamdou, Service Productivite, ORD/Yatenga
Ouedraogo Harouna, Chef de Service Institutions Rurales et Credit, ORD/Yatenga
Kabore Laurent, Planification, ORD/Yatenga
Ouedraogo Ambroise, Directeur Regional des Travaux Publiques, Ouahigouya

Kafando Saidou, Chef de District des Travaux Publiques de Ouahigouya
Djeque Dakoor, Directer Provencal de l'Environment et du Tourism, Ouahigouya
Dr. Barry Sekou, Directeur Service Provincial de l'Elevage, Ouahigouya
Some Jacques, Assistante d'Elevage, Ouahigouya
Ouedraogo Dawda, Animateur, URCOMAYA
Ouedraogo Idrissa, Treasurer, URCOMAYA
Ouedraogo Harouna, Chef de Service Statistique, Ouahigouya Hospital
Kobanka Charles, Directeur Service Provincial de l'Elevage
Sole Moussa, Infirmier Veterinaire, Service Elevage, Seguenega
Sawadogo Kibile, Chef de CFJA Seguenega
Richard, PCV/CFJA Seguenega
Marcel Zon, Nurse, Seguenega Medical Center
Dr. Ky, Chief, Seguenega Medical Center
Raphael Nikiema, Responsible for Functional Literacy, Seguenega

...and numerous other officials, village health agents, midwives, extension agents, farmers, and villagers whose names we missed.

2. DORI INTEGRATED RURAL DEVELOPMENT PROJECT

Jerry Passela, SCF/CDF Country Director
Abdullahi Barre, SCF/CDF Project Manager
Cisse Djelaly, SCF/CDF Assistant Project Manager
Madame Diallo, SCF/CDF Animatrice for Productivity Sector, Dori
Jonathan Kessler, SCF/CDF Volunteer
Paul Sekely, SCF/CDF Donor Services (Sponsorship)
Nouhoun Maiga, SCF/CDF Coordinateur Agriculture et Elevage
Mahomat Boukongou, Haute Commissaire, Provence du Sahel Captain
Ternagda, Directeur, Dori Hospital

...and again, village health agents, midwives, and villagers whose names we did not get.

3. USAID/OUAGADOUGOU

Emerson Malaven, Director
Larry Heilman, Deputy Director
John Becker, Chief, ARD
Roger Bloom, ARD
Helen Gunther, ARD
Bob Zeigler, Training
Charles Kelly, Food For Peace Coordinator

4. OTHERS IN OUAGADOUGOU

Daoda Contongomde, Director of Planning and Evaluation, Ministry of Rural Development, GOBF
Timothy J. Mooney, Financial Advisor OFNACER
William Rounds, Engineer, CFJA
James Otter, Save the Children-United Kingdom
Susan Hahn, Catholic Relief Services
Dr. Jacqueline Sherman, Center For Research on Economic Development (CRED)
Landis MacIntyre, ex-PCV, Dori

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